

**CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES**

**CORE MANAGEMENT PLAN
INCLUDING CONSERVATION OBJECTIVES**

FOR

CORSYDD EIFIONYDD SAC
including the following:

Cors Graianog SSSI/NCR
Cors Gyfelog SSSI/NNR
Cors Llanllyfni SSSI
Cors y Wlad SSSI

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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 sites named. It sets out what needs to be achieved on the sites, 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 sites. 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.

Corsydd Eifionydd SAC, which comprises 4 component SSSI's should support a range of wetland habitats including fen, bog, marshy grassland, wet woodland and swamp habitats.

These habitats should be of good quality, supporting a number of scarce, rare and endangered plant species. The component sites should also provide habitat for a wide range of birds, insects and reptiles. However, between them, they should also support three features of international importance namely transition mire and quaking bog, marsh fritillary and slender green feather moss.

Cors Gyfelog and Cors Graianog should support a diverse range of nutrient poor to moderately nutrient rich fen habitat which often manifest as quaking rafts, particularly over former peat-cuttings. The quaking nature of these areas of fen, coupled with their transitional (between alkaline fen and acidic bog) flora and water chemistry, is reflected in the title 'transition mire and quaking bog'. This term applies to a sub-set of the fen habitat within the site, and is the main habitat feature of European interest. Areas of wet fen dominated by slender sedge *Carex lasiocarpa* are a particular feature of Cors Gyfelog. Bog mosses (*Sphagnum*) should be a prominent component of the quaking bog (including *S. auriculatum*, *S. contortum*, *S. papillosum*, *S. subnitens* and occasional *S. magellanicum*) together with bog species such as cranberry *Vaccinium oxycoccus*, bog St. Johns-wort *Hypericum elodes* and bog asphodel *Narthecium ossifragum* occurring beneath an open canopy of bog sedge *Carex limosa*. Bog orchid *Hammarbya paludosa* should also be found in hummocks of *Sphagnum subnitens*. These sites should have water at or just above the surface during the driest part of the year and when the site is walked upon, the bog shakes. Other quaking bogplants should include typical wetland species such as cross-leaved heath, bog asphodel, sundews, bogmosses and cotton grass. The SAC should support healthy populations of rarer plants such as intermediate bladderwort, bog sedge, royal fern, oblong-leaved sundew together with rare insect populations.

Cors Gyfelog and Cors Graianog should support areas of mature wet woodland (willow carr). This diverse woodland community has developed over a number of years and in places supports a rich lichen and moss community. Wet woodland should cover no more than 30% of Cors Gyfelog and 10% of Cors Graianog. There should be no rhododendron present within

either site or the SAC as a whole.

The sites should regularly support a viable population of the marsh fritillary butterfly, which contributes towards the larger population of this butterfly in the general area. To ensure this, at least 80% of the Cors y Wlad should be covered by rushy vegetation (rhos pasture). The habitat should be of good quality (tussocky grassland at a height of 10 – 20cm) with an abundance of devil's bit-scabious, the food plant of the butterfly larvae. Similar habitat suitable for the marsh fritillary butterfly should be present on Cors Gyfelog and Cors Graianog. A visitor walking through these sites on a sunny day in early June will see numerous marsh fritillary butterfly adults nectaring on flowering herbs and laying eggs on devils bit scabious. The butterfly, which requires a mixture of open short swards and tussocky vegetation to provide shelter, breeds throughout the site. In early spring and late summer the caterpillars may be seen, feeding in silken webs on their foodplant.

Finally, the slender green feather moss should be visible as green 'cushions' amongst the low growing vegetation of Cors Llanllyfni and Cors Gyfelog. These 2 sites should support a healthy population of the slender green feather-moss. Management shall ensure that the population remains stable and afford it the opportunity to expand.

Ponies or cattle should preferably graze these habitats during the summer to maintain the wetland habitat in a suitable condition to support the wide range of plant and animal species that are found here.

2. SITE DESCRIPTION

2.1 Area and Designations Covered by this Plan

Grid references: Cors Graianog	SH497454
Cors Gyfelog	SH460480
Cors Llanllyfni	SH460514
Cors y Wlad	SH441472

Unitary authority: Gwynedd

Area (hectares): 144ha

Designations covered: The Corsydd Eifionydd SAC in Gwynedd is made up of four separate Sites of Special Scientific Interest; Cors Graianog SSSI/NCR, Cors Gyfelog SSSI/NNR, Cors Llanllyfni SSSI and Cors y Wlad SSSI (Figure 1). Together they cover over 144 ha and support three features of international importance.

Detailed maps of the designated sites are available through CCW's web site:
<http://www.ccw.gov.uk/interactive-maps/protected-areas-map.aspx>

See accompanying map showing coverage of this document.

2.2 Outline Description

Corsydd Eifionydd SAC is made up of four separate Sites of Special Scientific Interest; Cors Graianog SSSI, Cors Gyfelog SSSI/NNR, Cors Llanllyfni SSSI and Cors y Wlad SSSI. The sites are situated within the upland-fringe transition between Snowdonia and the Llŷn Peninsula and together they cover an area of over 144 ha. Between them, they should support three features of international importance namely transition mire and quaking bog, marsh fritillary and slender green feather moss. The sites should also support a range of other wetland habitats including marshy grassland, fen, bog, wet woodland and swamp habitats.

Note: For specific detailed descriptions of each component SSSI, please refer to SSSI citations.

2.3 Outline of Past and Current Management

Cors y Wlad SSSI is managed by two separate management agreements. One unit is managed under a Section 15 agreement, which allows for sheep and cattle grazing. The agreement also allows for cutting of vegetation in order to create a sward of varying height for the marsh fritillary. CCW are currently involved in negotiations to extend this agreement to include similar adjacent habitat outside the SSSI. A second management unit at Cors y Wlad SSSI is managed under a Tir Gofal agreement, which allows for cattle grazing and cutting of vegetation in order to create a sward of varying height for the marsh fritillary. Part of this unit is under grazed since cattle seem to preferentially graze the drier areas of land within this unit.

Cors Llanllyfni is managed under a Tir Gofal agreement, which involves grazing with ponies. The level of grazing is currently regarded as acceptable. Gorse scrub is an issue at this site and the Tir Gofal agreement allows for clearance as capital works management.

In the past, Cors Graianog has been treated as though it was common land, with communal grazing of the margins, shared manual maintenance of ditches, coppicing of willow, general clearance of scrub (the brashings used to be utilised to raise hay off the ground for drying) and peat cutting. Today, the central section of the site is largely unmanaged, whereas the margins of the site tend to be managed by pony and cattle grazing. There are currently two Management Agreements in place which cover marginal land located in the SE corner of the site, and primarily provide for appropriate pony/cattle grazing regimes. In addition, CCW are currently in negotiations for the removal of scrub in the central part of the site.

Cors Gyfelog, being an NNR, is subject to the most active management of all component sites within the SAC. A significant part of the site is owned by CCW and extensive scrub clearance has been undertaken together with providing appropriate infrastructure (fences and pony pens etc) for grazing with ponies. The remainder of the site has been subject to CCW management agreements but at present only one agreement exists which allows for grazing with ponies and removal of scrub whenever required.

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 purely on tenure at present. This may be amended in the future.

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

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

Table 1 confirms the relationships between the management units and the designations covered:

Table 1. Management unit number and designations covered within each management unit.

Corsydd Eifionysdd SSSI/SAC				
Unit number	SAC	SSSI	CCW owned	Other
1	✓	✓		
2	✓	✓	✓	NNR
3	✓	✓		
4	✓	✓		
5	✓	✓		
6	✓	✓		
7	✓	✓		
8	✓	✓		
9	✓	✓		
10	✓	✓		
11	✓	✓		
12	✓	✓		
13	✓	✓		
14	✓	✓		
15	✓	✓		

16	✓	✓		
17	✓	✓		
18	✓	✓		
19	✓	✓		
20	✓	✓		
21	✓	✓		
22	✓	✓		
23	✓	✓		

3. **THE SPECIAL FEATURES**

3.1 Confirmation of Special Features

<i>Designated feature</i>	<i>Relationships, nomenclature etc</i>	<i>Conservation Objective in part 4</i>
<i>SAC features</i>		
<i>Annex I habitats that are a primary reason for selection of this site:</i> 1. Transition mires and quaking bogs (EU Habitat code 7140)	This habitat forms part of the topogenous fen SSSI feature, see below.	1
<i>Annex II species that are a primary reason for selection of this site:</i> 1. Slender green feather moss <i>Drepanocladus (Hamatocaulis) vernicosus</i> . EU Species Code 1393 2. Marsh fritillary butterfly <i>Euphydryas aurinia</i> EU Species Code 1065.	This species is also an SSSI feature (see below). This species is also an SSSI feature (see below).	2 3
<i>SPA features</i>		
Not applicable		
<i>Ramsar features</i>		
Not applicable		
<i>SSSI features</i>		
Narrow-bordered bee hawk-moth		
Marsh fritillary	This species is also a SAC feature (see above)	
Slender green feather moss	This species is also a SAC feature (see above)	
Wet woodland		
Topogenous fen	This habitat is partly a SAC feature.	

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 driver of management and focus of monitoring effort, perhaps because of the dependence of a key species (see KS below). There will usually only be one Key Habitat in a unit but there can be more, especially with large units.

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 driver of management and focus of 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 drivers of management or focus of monitoring. These features will benefit from management for the key feature(s) identified in the unit. These may be classed as 'Sym' features because:

- they are present in the unit but may be of less conservation importance than the key feature; and/or
- 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
- their requirements are broader than and compatible with the management needs of the key feature(s), e.g. a mobile species that uses large parts of the site and surrounding areas.

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 that are essential for the management of features elsewhere on a site e.g. livestock over-wintering area included within designation boundaries, buffer zones around water bodies, etc.

x - Features not known to be present in the management unit.

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

Table 3a. Special features and management units at Corsydd Eifionydd SAC.

Corsydd Eifionydd SAC	Management unit									
	1	2	3	4	5	6	7	8	9	10
SAC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SSSI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NNR/CCW owned	x	✓	x	x	x	x	x	x	x	x
SAC features										
1. Transition mire and quaking bog,	x	KH	x	KH	x	KH	x	x	x	x
2. Slender green feather moss	x	KS	x	KS	x	x	x	x	x	x
3. Marsh fritillary	x	KS	x	x	x	x	KS	x	x	x
SSSI features										
4. Narrow-bordered bee hawk-moth	x	x	x	x	x	x	KS	x	x	x

5. Marsh fritillary	*	KS	*	*	*	*	KS	*	*	*
6. Slender green feather moss	*	KS	*	KS	*	*	*	*	*	*
7. Wet woodland	*	KH	*	*	*	KH	*	*	*	*
8. Topogenous fen	KH	Sym	KH	Sym	KH	*	*	KH	KH	KH

Corsydd Eifionydd SAC	Management unit									
	11	12	13	14	15	16	17	18	19	20
SAC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SSSI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NNR/CCW owned	*	*	*	*	*	*	*	*	*	*
SAC features										
1. Transition mire and quaking bog,	KH	*	*	KH	KH	*	KH	KH	KH	*
2. Slender green feather moss	*	*	*	*	*	*	*	*	*	*
3. Marsh fritillary	*	KS	*	*	*	*	*	*	*	*
SSSI features										
4. Narrow-bordered bee hawk-moth	*	KS	*	*	*	*	*	*	*	*
5. Marsh fritillary	*	KS	*	*	*	*	*	*	*	*
6. Slender green feather moss	*	*	*	*	*	*	*	*	*	*
7. Wet woodland	*	*	*	*	*	*	*	*	*	*
8. Topogenous fen	Sym	*	KH	Sym	Sym	Sym	Sym	Sym	Sym	Sym

Corsydd Eifionydd SAC	Management unit		
	21	22	23
SAC	✓	✓	✓
SSSI	✓	✓	✓
NNR/CCW owned	*	*	*
SAC features			
1. Transition mire and quaking bog,	KH	*	*
2. Slender green feather moss	KS	KS	*
3. Marsh fritillary	KS	*	*
SSSI features			
4. Narrow-bordered bee hawk-moth	*	*	*
5. Marsh fritillary	KS	*	*
6. Slender green feather moss	KS	KS	*
7. Wet woodland	*	*	*
8. Topogenous fen	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 status 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 Monitoring¹.

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: Transition mires and quaking bogs (EU Habitat Code: 7140)

Vision for feature 1

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

- Transition mire and quaking bog will be the dominant habitat at Cors Gyfelog and Cors Graianog
- A mosaic of fen, bog, marshy grassland and swamp habitats should cover at least 80% of both sites. The habitat should be of good quality, supporting a number of scarce, rare and endangered plant species. It should also provide habitat for a wide range of birds, insects and reptiles.
- During the driest part of the year most of the site should have water at or above the surface and when the site is walked upon, the bog shakes. This quaking bog should support wetland habitats with typical species such as cross-leaved heath, bog asphodel, sundews, bogmosses (*Sphagnum* spp.) and cotton grass.
- The site should support healthy populations of rarer plants such as intermediate bladderwort, bog sedge, royal fern, oblong-leaved sundew together with rare insect populations. Habitat suitable for the marsh fritillary butterfly should be present. The blue flowered devil's bit scabious should be common on the site because it is the food plant of marsh fritillary caterpillars.
- Wet woodland should cover no more than 30% of Cors Gyfelog and 10% of Cors Graianog and there should be no rhododendron present. This diverse woodland community has developed over a number of years and supports a rich lichen and moss community. The woodland should continue to contain a number of different tree species and be able to support the lichen and moss communities.
- Light grazing by cattle and ponies will occur across all accessible parts of the site during the late spring to early summer months.
- All factors affecting the achievement of these conditions are under control.

Performance indicators for Feature 1

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.

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of transition mires and quaking bogs	Area should be at least 10% greater than area mapped by lowland peatland survey.	<i>Upper limit:</i> None set, defined by current hydrological conditions. <i>Lower limit:</i> Area should be at least 10% greater than area mapped by lowland peatland survey: Cors Graianog (2004) = 5.3 ha (whole site = 35.2 ha) and Cors Gyfelog (2006) = 14.1 ha (whole site = 73.9 ha).

<p>A2. Condition of transition mires and quaking bogs.</p>		<p><i>Upper limit:</i> Not required <i>Lower limit:</i> At least 70% of the ‘transition mire and quaking bog’ vegetation shown in Figures 2 and 7 is good quality (see SAC Monitoring Report).</p>
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
<p>F1. Management neglect and scrub encroachment:</p>	<p>The development of mature wet woodland is a key symptom of lack of management. This habitat is important for some plants, insects and birds. However, young willow and birch trees can spread from areas of mature wet woodland to other parts of the site (including areas of transition mires and quaking bogs). Young willow can quickly invade areas of important wetland habitat, and reduce its interest. Scrub management will be needed to halt and ideally to reverse this trend.</p> <p>The other main symptom of management neglect is the development of rank tussocky stands of purple moor-grass at the expense of open sedge and bog-moss vegetation of the transition mire and quaking bog habitat. This needs grazing wherever possible; small-patch burning may also play a role, together with strimming and raking of cut material.</p>	<p><i>Scrub cover</i> <i>Upper limit:</i> 10% at Cors Graianog 30% at Cors Gyfelog <i>Lower limit:</i> 5% at Cors Graianog 25% at Cors Gyfelog</p> <p>NOTE: Scrub species are also negative indicators in the assessment of good quality transition mires and quaking bogs (see above).</p>
<p>F2. Rhododendron:</p>	<p>Rhododendron is scattered over part of Cors Graianog. All should be destroyed by stem injection or cutting and stump treatment to prevent re-growth, seed production and further spread.</p>	<p><i>Upper limit:</i> Not required <i>Lower limit:</i> No rhododendron should be present on the sites supporting this habitat.</p>
<p>F3. Drainage and water supply:</p>	<p>The water table level at this site is of paramount importance to the habitats present. Inappropriate water level management has the potential to destroy the scientific interest. There have been efforts in the past to dry out the margins of both site through creating drainage ditches to increase the agricultural potential. It may be desirable to manage water levels, particularly in summer by using sluices on some ditches.</p> <p>Cors Gyfelog in particular, and possibly other component sites of the SAC, are</p>	<p>During the driest part of the year most of the site should have water at or above the surface and when the site is walked upon, the bog shakes. No new drainage operations allowed. Only minimal maintenance of existing ditches allowed. A water level management plan is required for this site.</p> <p>No targets possible for assessing groundwater resource, but Cors Gyfelog has recently been</p>

	likely to receive some water income from adjacent deposits of sand and gravel. This local groundwater resource is vulnerable to further quarrying and also waste infill. The impact of such operations on the SAC features will need to be monitored, and any further proposed operations subject to detailed EIA.	instrumented as part of a joint EA Wales/CCW project.
F4. Grazing:	Parts of this habitat are too wet to be grazed. Ponies, horses, cattle and occasionally sheep graze the site margins. Ponies will occasionally graze the wettest parts of the site. Light grazing maintains the correct conditions over most of the site including this habitat. The extent of grazed habitat needs to be increased by encouraging stock access to currently inaccessible parts of the site.	<p><u>For Cors Graianog & Cors Gyfelog:</u></p> <p><i>Upper limit:</i> 3 ponies/cattle per hectare for approx 14 weeks a year. <i>Lower limit:</i> 1 pony/cow per hectare for approx 14 weeks a year</p> <p>NOTE: Grazing with sheep is not appropriate, since sheep prefer to eat flowering plants rather than grasses, and can reduce flowering species over time.</p>
F5. Burning:	Burning is not generally regarded as appropriate for this habitat because any deep burn could seriously damage the wetland plants, insects and other wildlife. There have been some illegal uncontrolled burns on this site, which should not be tolerated. Small-patch burning may be considered as a means of controlling vigorous Molinia growth. Cutting followed by a period of heavier grazing is more appropriate– particularly in areas dominated by purple moor grass.	With the exception of carefully managed small-patch burns for conservation, burning will not be consented on this habitat and should not occur within the boundary of both sites supporting this habitat.
F6. Nutrient enrichment	Transition mire and quaking bog requires low nutrient conditions and is sensitive to enrichment from both terrestrial sources (i.e. the site catchment) and atmospheric deposition. Agreements will be sought or maintained which limit the application of nutrients to sensitive parts of each of the site catchments. The atmospheric nitrogen deposition regime (15 kg N / ha / year) is already at the upper limit of the estimated critical load for this habitat of c. 10 kg N/ha/yr (Bobbink et al, 2002), and the vigorous Molinia growth observed across parts of the site may in	<p><i>Upper limit:</i> 10 kg N / ha / year <i>Lower limit:</i> None.</p>

	part be a consequence of this. The ambient deposition of N needs to be reduced by policy level initiatives and by addressing any more localised sources of atmospheric N.	
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4.2 Conservation Objective for Feature 2: Slender green feather moss *Dreplanocladus (Hamatocaulis) vernicosus*. EU Species Code 1393

Vision for feature 4.2

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

- The low growing fen vegetation of Cors Gyfelog and Cors Llanllyfni should continue to support a healthy population of the slender green feather-moss. Management shall ensure that the population remains stable and afford it the opportunity to expand
- On Cors Gyfelog, *H. vernicosus* is confined to neutral or slightly basic flushes and runnels with an open vegetation structure of brown mosses, sedges, mixed forbs and *Sphagnum* spp.
- The open vegetation needs to be maintained by seasonally light grazing and a high water table with ground conditions being wet throughout the year, the water table being at or near to the surface.
- Under-grazing is a significant threat to the *H. vernicosus* sub-populations at both sites since it could lead to increased cover by rushes, forbs, sedges and scrub invasion. When the vegetation became denser, the *H. vernicosus* formed small sub-populations of a few scattered scrawny stems. The site is summer-grazed by ponies, which maintains the short open sward conditions favoured by the moss.
- Nutrient enrichment of the water source is also a potential risk at both sites. Measures should be implemented to prevent and/or reduce to a minimum sources of nutrient enrichment.
- Certain herbs, grasses and sedges grow in close proximity to the moss populations. These plants share the habitat requirements of the moss; they include Lesser Spearwort, Sharp-flowered Rush, Purple Moor Grass, Star Sedge, Carnation Sedge, Devil's-bit Scabious, Lesser Skullcap, Large Birdfoot Trefoil, Bogbean, Common marsh-bedstraw, Common Cotton Sedge, Bottle Sedge, Common Sedge, Common Yellow Sedge, Velvet Bent and Flea Sedge.
- All factors affecting the achievement of the foregoing conditions are under control

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Population	Individual plants of Slender Green Feather moss are physically small, very difficult to locate and very susceptible to localised habitat change. Populations (for definitions, see Birch, 2006) are easier to locate, more robust and are therefore the most pragmatic unit to consider as an attribute of	<p><i>Lower limit</i></p> <p>At Cors Gyfelog, the species should be present within 2 discrete areas (Areas A & C as detailed in SAC Monitoring report, Kathryn Birch, 2006).</p> <p>Area A</p> <p>Re-locate two core populations (A4 and A6)</p> <p>Within A4, there must be two monitoring</p>

	extent.	<p>points containing over 1000 stems of <i>H. vernicosus</i> and two containing over 100 stems. Within A6, one monitoring point containing over 1000 stems and two containing over 100 stems.</p> <p>Area C Relocate three out of five sub-populations.</p> <p>Cors Llanllyfni: Relocate two sub-population of <i>H. vernicosus</i></p>
A2. Habitat.	The condition of the habitat which supports the Slender green feather moss is important for maintaining the population in favourable condition.	<p><i>Lower limit</i></p> <p>The vegetation within Areas A and C of Cors Gyfelog and on Cors Llanllyfni should be suitable for supporting <i>H. vernicosus</i> such that:</p> <ul style="list-style-type: none"> • Water present at or within 5 cm of the surface at all monitoring points. • <i>Carex limosa</i> is present within monitoring point. • At least three 10 x 10 cm patches of brown mosses within monitoring point. • Vegetation height 10 cm or less (using Borman disc) within monitoring point. • No scrub e.g. <i>Salix</i> spp. and <i>Ulex</i> spp. plants >50 cm within 10 m of monitoring point. • No <i>Carex paniculata</i> tussocks (contiguous patch of stems with a diameter >10 cm) within 10 m of monitoring point. • No <i>Molinia caerulea</i> tussocks (contiguous patch of stems with a diameter >10 cm) or tussock litter within monitoring point. • No evidence of nutrient enrichment of water <p><i>Upper limit</i></p> <p>None specified but restricted by limited suitable vegetation. Whilst it is desirable for this species to have the widest distribution over the SAC, availability of habitat probably limits occurrence to known, existing locations.</p>

<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
F1. Scrub/gorse encroachment:	Slender Green feather moss requires open conditions where there is not excessive shading. European gorse and scrub could encroach on to the habitat which is important for the moss, in which case, control may be necessary.	No scrub e.g. <i>Salix</i> spp. and <i>Ulex</i> spp. plants >50 cm within 10 m of monitoring point (as per habitat condition limits described above).
F2. Water quality	The land immediately above Cors Llanllyfni appears to be more improved suggesting that it is subject to more intensive management. This is a concern, as it is likely that anything applied to this land (eg fertilisers) will, in part, drain down onto the site of interest with the potential to upset the nutrient balance. No supplementary feeding of stock should take place on this site as this too can increase the level of nutrients in the peat and surface water.	No evidence of nutrient enrichment of water (as per habitat condition limits described above). To minimise the risk of nutrient-rich runoff at Cors Llanllyfni, a 'buffer-zone' of around 10 – 20 m where no fertiliser or other chemicals are applied should be created at the top of the slope and no supplementary feeding should take place within the sites supporting the moss
F3. Drainage:	The maintenance of the current water level is vitally important to the 2 sites where the moss occurs. At Cors Llanllyfni, several springs cause flushing in the vegetation where the moss occurs. The hydrology of these springs should not be altered in any way.	<i>Lower limit</i> Water present at or within 5 cm of the surface at all monitoring points (as per habitat condition limits described above).
F4. Grazing:	Grazing usually creates the open conditions required by the Slender Green Feather Moss and prevent competition from vascular plants. Habitat supporting the moss needs to be grazed by heavy-hoofed animals ideally ponies	<i>Upper limit:</i> 3 ponies/cattle per hectare for approx 14 weeks a year. <i>Lower limit:</i> 1 pony/cow per hectare for approx 14 weeks a year NOTE: Grazing with sheep is not appropriate, since sheep prefer to eat flowering plants rather than grasses, and can reduce flowering species over time.

4.3 Conservation Objective for Feature 2: Marsh fritillary butterfly *Euphydryas aurinia* EU Species Code 1065.

Vision for feature 4.3

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

- To ensure this, at least 80% of Cors y Wlad SSSI should be covered by habitat suitable for the marsh fritillary i.e. rushy vegetation (rhos pasture). The habitat should be of good quality (tussocky grassland at a height of 10 – 20cm) with an abundance of devil’s bit-scabious, the food plant of the marsh fritillary caterpillars.
- The SAC supports a nationally important population of the marsh fritillary butterfly. Although, numbers of adult butterflies and larvae fluctuate annually in response to a parasitic wasp and weather conditions, the population is robust, resilient and viable in the long term. This population contributes towards the larger population of the butterfly in the general area.
- During peak years, a visitor taking a walk through the site on a sunny day in June will see numerous adult butterflies. In these years the caterpillars, feeding communally in silken webs on their foodplant devils bit scabious, will be abundant throughout those units supporting the butterfly.
- The SAC population contributes to and is the core of the Eifionydd marsh fritillary metapopulation. The metapopulation consists of the SAC population, plus populations breeding on land outside the SAC.
- The population breeds throughout 4 units, where it is a key species driving the management of each unit.
- Rosettes of devils bit scabious will be both very numerous and widespread throughout parts of those units supporting marsh fritillary (particularly Cors y Wlad SSSI), growing amongst a turf of grasses, sedges and flowering herbs with scattered tussocks of purple moor grass and rushes providing shelter for the caterpillars in wet weather.
- Dense mixed hedges of hawthorn, hazel, mountain ash and other locally native species grow around the external and internal boundaries and offer vital shelter to the breeding adult butterflies during poor weather in what is otherwise a very exposed landscape with little shelter.
- All factors affecting the achievement of the foregoing conditions are under control

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Abundance of Larval webs	Abundance of larval webs is a key attribute used a performance indicator. Previous work on population dynamics has demonstrated that populations vary between periods of high and low numbers. From this it has been estimated that during peaks in the population cycle a density of 200 larval webs per hectare of good condition habitat is an appropriate target for strong populations.	<p><i>Lower limit:</i> For one in every six years the number of larval webs across the SAC will be</p> <ul style="list-style-type: none"> • 200 per hectare of Good Condition habitat. <p>For Cors y Wlad, this would translate as:</p> <ul style="list-style-type: none"> • Cors y Wlad SSSI – 1458 webs • Cors Gyfelog SSSI – to be determined • Cors Graianog SSSI – to be determined <p><i>Upper limits:</i> Not specified</p>

<p>A2. Extent of habitat.</p>	<p>Research indicates that the marsh fritillary requires at least 50ha of available habitat for a metapopulation to be viable in the long term. At least 10 hectares of the available habitat must be categorised as being in good condition.</p> <p>(for definitions of habitat categories used, see below).</p>	<p><i>Lower limit:</i> At least 50 ha of Available habitat, including at least 10 ha of Good Condition habitat</p> <p>For component SSSI's, this would translate as follows:</p> <p>At least 7.3 ha of Good Condition habitat on Cors y Wlad SSSI.</p> <p>Within the Eifionydd metapopulation (which includes the remaining component SSSI's together with other non-statutory sites of interest) there needs to be at least another 42.7ha of available habitat, of which 2.7ha has to be Good Condition. If this is not achievable, then consideration must be given to statutory protection and appropriate management of non-statutory sites.</p> <p>N.B. No target values have been established for suitable and consequently available habitat.</p> <p><i>Upper limits:</i> Not specified</p>
<p>A3. Quality</p>	<p>The main larval food plant for the marsh fritillary is <i>Succisa pratensis</i>, especially large-leaved plants where females selectively choose to breed.</p>	<p>Good condition areas for the SAC as a whole are classed as grassland where, for at least 80% of sampling points, the vegetation height is within the range of 12-25cms and <i>Succisa pratensis</i> is present within a 1m radius. Scrub (>0.5 metres tall) covers no more than 5% of the area. These criteria will vary from one component site to another.</p> <p>For Cors y Wlad the following provisional criteria apply:</p> <p><i>Lower limit:</i> At least 90% of the sample points within plots A-B on Cors y Wlad SSSI within a 50cm radius of any point:</p> <ol style="list-style-type: none"> 1. <i>Succisa pratensis</i> is present <p>And:</p> <p>At least 50% of the sample points within plots A-B on Cors y Wlad SSSI within a 50cm radius of any point fulfil each of the following:</p> <ol style="list-style-type: none"> 1. <i>Molinia caerulea</i> is present 2. <i>Succisa pratensis</i> is present 3. Vegetation height is between 10 and 25cm (when, measured with a Borman's disc).

		Across both plots: Scrub species (>50cm height) cover <10% of the area.
Definitions:		
Good condition habitat: Grassland where for at least 80% of sample points the vegetation is within the range 12-25cm and <i>Succisa</i> is present within a 1m radius. Scrub >0.5m tall cover no more than 10% of the area		
Suitable condition habitat: Stands of grassland where <i>Succisa pratensis</i> is present at lower frequencies but still widely distributed (>5% of sampling points) throughout the habitat patch and in which scrub (>0.5 metre tall) covers no more than 25% of area. Alternatively, <i>Succisa</i> may be present at high density in close-cropped swards.		
Available habitat: Available habitat is the total of Good Condition habitat and Suitable habitat.		
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
F1. Scrub/gorse encroachment:	Willow and/or European gorse could begin to encroach on to the rush habitat which is important for the butterfly, in which case, control may be necessary. Ideally, the gorse could be cut and treated with an approved herbicide.	Scrub (>0.5 metres tall) covers no more than 10% of Cors y Wlad.
F2. Shelterbelts	The species is particularly vulnerable to wet and windy conditions during the adult flight period when mating occurs. Shelterbelts and hedges reduce the impact of inclement weather.	<i>Upper limit:</i> not required <i>Lower limit:</i> Management units supporting marsh fritillary boundaries should have hedges or shelterbelts. Note: shelterbelts should not prevent movement of adults and larvae between fields.
F3. Water quality	Anything applied to surrounding land (eg fertilisers) will, in part, drain onto the site of interest with the potential to upset the nutrient balance.	No evidence of nutrient enrichment of water (as per habitat condition limits described above). To minimise the risk of nutrient-rich runoff at Cors y Wlad, a 'buffer-zone' of around 10 – 20m where no fertiliser or other chemicals are applied should be created in areas where there is a potential problem. No supplementary feeding should take place within the sites supporting the butterfly.
F4. Drainage:	Habitats supporting marsh fritillary requires a relatively high water table in order to	<i>Lower limit</i> Inappropriate water level management including modifications to rivers, streams,

	<p>survive. Consequently, the maintenance of the water level/table at its natural level is a crucial factor at this site and there should be no management activity that could alter the water level.</p>	<p>drains and ditches on or near to the site, has the potential to alter water levels and destroy the marsh fritillary population.</p>
<p>F5. Grazing:</p>	<p>Grazing of a marsh fritillary site is necessary to maintain the tussocky structure of the vegetation. This is important for shelter to over-wintering larvae.</p>	<p>As with all wetland habitats, low intensity cattle or pony grazing is recommended.</p> <p>However, Cors y Wlad is currently grazed by both cattle and sheep and there does not appear to be any problem with the current grazing levels, although the exact regime is not known by CCW at this time.</p> <p>NOTE: Grazing with sheep is not appropriate, since sheep prefer to eat flowering plants rather than grasses, and can reduce flowering species over time including devils-bit scabious.</p>

5. ASSESSMENT OF CONSERVATION STATUS AND MANAGEMENT REQUIREMENTS

This part of the document provides:

- A summary of the assessment of the conservation status of each feature.
- A summary of the management issues that need to be addressed to maintain or restore each feature.

5.1 Conservation Status and Management Requirements of Feature 1: Transition mires and quaking bogs (EU Habitat Code: 7140)

Conservation Status of Feature 1: Unfavourable declining

Monitoring (K.Birch 2007) has shown that whilst Cors Gyfelog SSSI/NNR and Cors Graianog SSSI have a good spread of ‘transition mire and quaking bog,’ covering a range of NVC and non-NVC communities, the current management system has led to under-grazing (Cors Gyfelog and Cors Graianog), no grazing (parts of Cors Gyfelog), scrub encroachment and uncontrolled burning (Cors Graianog). This has caused degradation in quality of the feature. Without active site management, the feature will continue to decline in both quality and extent. It is worth noting that there does not appear to be any current evidence of adverse hydrological conditions on either site, although Cors Gyfelog in particular is potentially vulnerable to a range of groundwater impacts. For a detailed assessment of the management units which support this habitat, please refer to Birch, 2007.

Management Requirements of Feature 1

Grazing

Part of Cors Gyfelog (Area A, see Birch 2007.) supports ‘transition mire & quaking bog’ communities in excellent condition, which should be aspired to for the rest of the site where the hydroecological conditions apply. Ponies graze this area to maintain a patchily short open sward creating ideal conditions for the desired communities. At present the ponies are kept on site all year and foal on site. They are used to the ‘quaking’ nature of the site and are happy to graze the whole area. There are problems associated with the grazing of Area B at Cors Gyfleog since the CCW ponies are not acclimatised to the ‘quaking’ nature of the habitat in the same way as the Gyfelog Farm ponies so they tend to stay in the pasture areas around the edge of the of the fen and not venture out onto the ‘transition mire and quaking bog’ where they are required. This requires attention otherwise the sward will become too tall and closed and shade out the characteristic species. Area B is naturally wetter and more ‘quaking’, than Area A so it may not be possible to graze the whole of this area. .

Area C at Cors Gyfelog contains small patches of ‘transition mire & quaking bog’ communities which are in unfavourable condition due to the presence of *Molinia* tussocks and the build up of leaf litter due to lack of grazing. No grazing is occurring on this section at present. The site is currently un-grazed causing much of the vegetation to become taller and denser and leading to the spread of scrub (mainly *Salix* spp.), greater tussock sedge *C. paniculata* and *Molinia*. Despite this change, ‘transition mire & quaking bog’ communities are present, if in a degraded state which could be restored quite easily by returning grazing. This part of the site is less ‘quaking’ than areas A & B so would probably be mores suitable to use of CCW ponies who are not acclimatised to the ‘quaking’; condition.

The current management regime in Area A should be maintained. Grazing is needed on this site in Areas B & C and judging by the Phase II survey, is also needed in Areas D & E. Without grazing, the 'transition mire & quaking bog' feature will continue to decline in quality and extent. Options for mechanical clearance of *Molinia* in localised areas may also need to be considered – for example strimming and hand-raking. The 'transition mire & quaking bog' feature on Cors Graianog also suffers from lack of grazing. The abundance of *Molinia* on the site is quite high, probably due to problems with burning on the site (see below)

Nutrient enrichment

In the summer 2006, there was some concern over a eutrophic area near Gyfelog Farm due to a leaching manure heap but this was cleared up. Any further incidents of eutrophication in this area could have an impact on the 'transition mire and quaking bog' communities so should be prevented.

Agreements need to be sought or maintained to control nutrient applications within the site catchment. Enrichment may also have occurred as a result of past episodes of silt deposition from the sand and gravel quarry to the north of Cors Gyfelog: silt loads must be maintained at very low levels (<40 mg/l). Nutrient enrichment impacts resulting from adjacent landfill pose a potential risk: EIA screening to-date has ruled out any significant impact, but this needs to be monitored.

Scrub clearance

Area B at Cors Gyfelog (see Birch 2007) contains a large area of 'transition mire & quaking bog', which has the potential to be restored. The main reason why this area failed was due to the density of *Molinia* and, to a lesser extent, *Salix* spp. scrub. This part of the SSSI/NNR is owned and managed by CCW using ponies for grazing, and scrub clearance through stem injection. The scrub clearance has been reasonably successful (some areas of mature scrub are desirable and important for invertebrate species so it is not intended to remove all scrub on the site.) Figure 9 shows the distribution of woodland and willow scrub on the site in relation to 'transition mire & quaking bog'.

Rhododendron ponticum is also present on Cors Graianog and it is important to get some management in place here to remove this invasive species.

Uncontrolled burning

A large section of Cors Gyfelog was burnt in March 2006, by a fire that probably started on the adjacent hillside and spread to the fen. Much of the damage appeared to be superficial with tussocks of *Molinia* having been burnt but the fire had not penetrated the core of the tussocks.

The fire caused all the leaf litter to be burnt-off and stimulated a fresh flush of *Molinia* growth. Other effects caused by the burn were an increase in deer grass *Trichophorum cespitosum* and the moss *Polytrichum commune*. Regular burning on the site may also aid the spread of scrub: both willow and the non-native *Rhododendron ponticum*, which is also present on the site.

Small patch burning for conservation purposes may have a role to play in breaking the dominance of *Molinia*, but only if followed by grazing and/or cutting

Hydrological regime

The hydrological regime of the two largest sites appears substantially favourable, but this does not preclude future management to control or modify water levels. Potential groundwater impacts at Cors Gyfelog have already been discussed, and ongoing monitoring will be needed to ensure that impacts are detected early and any necessary mitigation put in place.

5.2 Conservation Status and Management Requirements of Feature 2: Slender green feather moss *Drepanocladus (Hamatocaulis) vernicosus*. EU Species Code 1393

Conservation Status of Feature 2: Unfavourable declining.

Hamatocaulis vernicosus has a good spread of sub-populations over three areas on Cors Gyfelog and is also present on Cors Llanllyfni. The current under-grazing of its habitat on Cors Llanllyfni or no grazing on Cors Gyfelog, with subsequent scrub encroachment has put the current populations at risk.

Management Requirements of Feature 2

Grazing/Scrub

At Cors Gyfelog, Holyoak (1999) stated that '*H. vernicosus* appears to be restricted to areas with greater water movement in an otherwise slightly basic flush fed by a spring'. There appeared to be no immediate threats to the site but grazing needs to be maintained to prevent tall herbs and/or scrub dominating.

It seems from Holyoak's description of Area A at Cors Gyfelog that the character of the site has changed, mainly due to the change in grazing regime. The site is currently un-grazed causing much of the vegetation to become taller and denser and leading to the spread of scrub mainly *Salix* spp., *C. paniculata* and *M. caerulea*.

Despite this change, CCW have discovered more *H. vernicosus* over a wider area than Holyoak had found. This suggests that with some grazing or cutting and scrub management, Area A could support an even healthier viable population of *H. vernicosus*. However, the moss would be restricted to patches of suitable habitat, particularly neutral or base-rich flushes.

The habitat in Area B is generally unsuitable for *H. vernicosus* so is unlikely to support large numbers of *H. vernicosus* so no particular management measures are recommended here except scrub management that would benefit other fen features.

Area C also supports a reasonable population of *H. vernicosus* so the same grazing/cutting and scrub management recommendation would apply.

At Cors Llanllyfni, Holyoak (1999) states that 'the whole area was grazed by sheep with no evidence of over-grazing'. *H. vernicosus* was considered to be a minor component of the vegetation over an expanse of 9 m length by 2 – 4 m width along one of numerous flushes in a very wet location. It occurred in the open with other mosses in light shade of rather sparse black sedge *Carex nigra* (20 cm tall) and sharp-flowered rush *Juncus acutiflorus* (80 cm). Holyoak stated that "no immediate threats were apparent at this site, but its integrity will depend on continued grazing and lack of nutrient enrichment of the water supply, which originates in the pasture land on higher slopes".

Since Holyoak's survey, it seems that Cors Llanllyfni has changed and the population of *H. vernicosus* has declined in the intervening seven years. The vegetation has become taller and denser and thus unsuitable for supporting *H. vernicosus* (Figure 10A). There is also widespread scrub encroachment by *U. gallii*. The site is currently under Tir Gofal agreement to graze three ponies between May and October. The ponies were not on the site at the time of the visit as they had been moved closer to the farmhouse for husbandry reasons due to the continued hot weather, although evidence of recent dung piles was noted. The area where *H. vernicosus* occurs would benefit from increased grazing and scrub management.

Water quality

At Cors Gyfelog and Cors Llanllyfni, Holyaok (1999) considered there to be a potential risk of the water supply becoming enriched if the surrounding fields had fertiliser applied.

In addition, there is also concern over an eutrophic area near Gyfelog Farm. Any expansion of eutrophication in this area would impact significantly on the nutrient-intolerant *H. vernicosus*.

5.3 Conservation Status and Management Requirements of Feature 3: Marsh fritillary butterfly *Euphydryas aurinia* EU Species Code 1065.

Conservation Status of Feature 3: Unfavourable declining

In view of the limited extent of good condition habitat within this SAC, restricted mainly to the limited area at Cors y Wlad SSSI, the feature is considered to be in unfavourable declining condition. The mapping of habitat quality on other component SSSI's within the SAC are recommended as a priority together with other sites within the general metapopulation.

Management Requirements of Feature 2

The main thrust of management must be to maintain and extend the habitat of the marsh fritillary within the SAC and outside the SAC boundary. Maintenance of existing available habitat will be achieved by a controlled grazing together with scrub control. Increasing the quality of suitable condition habitat to good condition habitat will also require selective cutting of vegetation. Encouraging cattle to graze within ranker stands of vegetation can be achieved by mowing corridors into these stands and removing the cut material.

Extension of available habitat will be achieved by appropriate management of other units within the SAC for the marsh fritillary. Consideration must also be given to adequate protection and management of other sites supporting marsh fritillary within the Eifionydd metapopulation together with management of suitable habitat in areas close to existing populations.

The key management issues that need to be addressed within the SAC are as follows:

1. Appropriate grazing of existing marsh fritillary sites to maintain the tussocky structure of the vegetation.
2. Ensure that no supplementary feeding of stock should take place on sites supporting marsh fritillary.
3. Control of scrub/gorse encroachment.
4. The maintenance of the water level/table at its natural level and ensure that there are no management activities that could alter the water levels.
5. Create 'buffer-zone' of around 10 – 20 m where no fertiliser or other chemicals would be applied to minimise the risk of nutrient-rich runoff onto the site.

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.

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
01	001878	Unit 1 - Llechwedd	scrub invasion slight problem	Yes
02	001879	Unit 2 - Countryside Council for Wales	CCW own land at Cors Graianog. On-going need to graze & carry out scrub clearance. Also need to investigate desirability of removing sediments washed into bog from nearby quarry. Water levels may need raising by creation of bunds, diverting ditches etc. Pollution - slurry run-off	Yes
03	001880	Unit 3 - Llidiart Mawr	no actions at present	No
04	001881	Unit 4 - Bodychain Uchaf	No issues/actions known at present.	No
05	001882	Unit 5 - Cefn Tryfar	burning on this unit has occurred in the past (needs to be investigated) grazing needs investigating (possibly slightly overgrazed?) Hydrology of unit needs investigating - past drainage attempts have made margins drier (see SMS).	Yes
06	001883	Unit 6 - Gwynedd Council	No actions at present apart from occasional fly tipping and disposal of dead sheep carcasses.	Yes
07	001884	Unit 7 - Bryn Ifan/Plas Celynin	In TG scheme but insufficient grazing in parts of unit. mowing/cutting may be required.	Yes
08	001885	Unit 8 - Pant Mawr	no actions at present	No
09	001886	Unit 9 - Glan Aber	no actions at present	No
10	001887	Unit 10 - Nant Cyll Canol	No actions at present	No
11	001888	Unit 11 - Estate	Scrub problem (including rhododendron) Burning (third party damage) issue in the past and potentially on-going issue.	Yes
12	001889	Unit 12 - Orsedd Fawr	S.15 MA to possibly include additional land to assist metapopulation objectives etc. cattle grazing and scrub clearance under agreement needs to be implemented. Work in agreement needs to be instigated directly.	Yes
13	001890	Unit 13 - Glan y Fawnog	no actions at present	No
14	001891	Unit 14 - 2 Hassal Road	Grazing levels Water levels	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
15	001892	Unit 15 - Cefn Graianog Quarry	Insufficient grazing. Scrub encroachment.	Yes
16	001893	Unit 16 - Bryn Eithin	Grazing levels, water levels.	Yes
17	001894	Unit 17 - Glan Don	no actions at present.	No
18	001895	Unit 18 - Cwrt Isaf	Parts of this unit are undergrazed and unmanaged. Molinia is also a problem due to past burning.	Yes
19	001896	Unit 19 - Caerau	Unit has been fenced with Crionfa Natur Gwyendd money but needs more grazing and scrub clearing.	Yes
20	001897	Unit 20 - Bron Graianog	No major issues at present. Pond created in this unit was part funded by CCW in the past.	No
21	001898	Unit 21 - Gyfelog farm	No actions apart from possible water quality issues (needs investigating - see SAC Monitoring report) Unit is grazed by ponies/horses and appears to be sufficient. On-going need to carry out scrub clearance under current S.15 agreement.	Yes
22	001899	Unit 22 - Lleuar Fawr	In TG scheme.	Yes
23	001900	Unit 23 - Cefn Tryfar/Bron Graianog	Burning has been a problem on this unit in the past (may need investigating/keeping an eye on).	Yes

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 ² : 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 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

² See JNCC guidance on Common Standards Monitoring <http://www.jncc.gov.uk/page-2272>

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**.³
- 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**
- 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

³ A full definition of favourable conservation status is given in Section 4.

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 .