

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

**CORE MANAGEMENT PLAN
INCLUDING CONSERVATION OBJECTIVES**

FOR

**RHINOG SPECIAL AREA OF CONSERVATION
(ACA)**

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**More detailed maps of management units can be provided on request.
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 named. It sets out what needs to be achieved on the site, 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. 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.

Rhinog is one of the most remarkable rough and rugged upland landscapes in Britain. Pale grey tiers of cliffs, jagged cascades of boulders, and small lakes, which shine like jewels on sunny days, break the uniformity of the dark dramatic heathery slopes.

The extensive dry heaths, together with the more localised damp and wet heath, collectively cover nearly 70% of the site. The heather is mainly tall and bushy and regenerates both from seed and by layering of plants, which results in a natural mosaic of different age plants on a small scale. The heath land should be maintained in its current good condition and less favourable areas should be encouraged to mature. The area of heath should remain stable or increase at the expense of acid grassland. Small areas of the fragile white-beaked sedge habitat will continue to occur as a component of wet heath. The fragile damp, moss and liverwort rich heath should continue to flourish and increase in cover on suitable north and northeast facing slopes.

The nationally rare liverwort Welsh notchwort should continue to flourish at its known locations within the humid rocky heath. On the summits of Rhinog Fawr and Rhinog Fach the existing montane heath with low growing heather should be maintained and encouraged to increase in area. It would be desirable for this specialised form of dry heath to occupy all suitable high ground. On the summit of Y Llethr, within extensive montane acid grassland, are small patches of sedge-moss heath with the regionally rare stiff sedge and dwarf willow. The stiff sedge and dwarf willow should flourish and increase in plant numbers and distribution across the summit areas. Marsh clubmoss, which is currently recorded from one location within the grazed peaty flushes of Cwm Bychan should be maintained in as vigorous condition as possible. It is important that the wet heath land and peaty flushes with white-beaked sedge are conserved within open moorland and woodland.

The blanket bogs are generally in good condition and should be maintained as such. However vegetation on the plateau to the west of Rhinog Fawr and the impoverished bogs of Moelyblithcwm and Y Llethr require restoration.

There are currently scattered birches, rowans and hawthorns on the lightly grazed heathery slopes and grassy hillsides. In the longer term, the development of open woodland and scattered trees onto heath, as a more natural tree line develops, is considered desirable.

The ungrazed ledges of the northern side of Y Llethr are unusual for their luxuriant growth and colour with relatively tall plants including roseroot, valerian, meadow sweet and devil's bit scabious. Under these is a layer of smaller plants such as mossy saxifrage and starry saxifrage with mosses and liverworts over the rocks. We would want to see expansion of this colourful and attractive community, where soils permit, on Y Llethr and within any other suitable areas.

The series of lakes, from those with little or no vegetation such as Llyn Hywel to the relative species richness of Llyn Cwm Bychan, should be maintained as naturally clear and unpolluted, with hopefully reduced inputs of acid rain. The acid or base-poor nature of the underlying rock together with extensive peat development means that the lakes are especially vulnerable to acidification.

The rare floating water plantain should continue to be recorded from Llyn Cwm Bychan in a number of locations and may hopefully be re-found or become re-established in other lakes

on the Rhinogydd where it has been recorded in the past.

There is currently an artificially low tree line so we would want to see further expansion of woodland by natural regeneration up the valleys and onto the heath. The woodland area should therefore remain stable or increase by trees spreading onto heath land and by bracken communities developing into woodland or wood pasture.

The existing woodland, which is generally in good condition, should be allowed to mature further so that veteran trees are scattered throughout in widely spaced wood pasture. The trees and shrubs should continue to be of locally native broadleaved species including: oak, downy birch, ash, rowan, holly, and hazel. Rhododendron will hopefully continue to be absent from the site and preferably from the surrounding countryside. Naturally regenerating tree seedlings and saplings will slowly fill a changing patchwork of temporary glades formed by natural tree fall. Fallen and standing dead trees, as well as live trees with holes, hollows and rotten branches, will provide special habitats for various mosses, liverworts, fungi, insects, birds and bats. Throughout the woodland there should be ample dead wood.

The shape and structure of the various geomorphological landforms occurring within the site should be maintained. All of the landforms present are particularly fragile and could be easily destroyed. We aim to ensure that Rhinog SAC will continue to provide one of the best localities in Wales for the study and interpretation of Pleistocene landforms, geomorphological processes and climate variation.

2. SITE DESCRIPTION

2.1 Area and Designations Covered by this Plan

The coverage of this plan adheres to the boundaries of Rhinog SAC.

Grid reference: centred on approximately SH650300

Unitary authority: Gwynedd County Council.

Area (hectares): 3144

Designation covered: **Rhinog Special Area of Conservation only**

Detailed maps of the designated sites are available through CCW's web site:

<http://www.ccw.gov.uk/interactive-maps/protected-areas-map.aspx>

2.2 Outline Description

The Rhinogydd are carved out of the hard, acidic Cambrian grits of the Harlech dome and have a rugged topography with scattered upland lakes, block-littered slopes, cliffs and outcrops.

The geographical position of the site imposes an oceanic influence on the climate resulting in high rainfall, moderate temperatures and generally high humidity. The vegetation is dominated by heather *Calluna vulgaris* growing on thin, poor acidic soils. Grazing and burning practices over the past 60 years have been relatively minor and as such the heather stands are deep and mature. This, together with the prevailing climatic conditions, has resulted in a luxuriant ground flora of bryophytes and ferns. As an example of such unmodified *Calluna* habitat this site is unique in Wales.

On shady slopes, the site contains what is considered to be the best development of the sub-alpine heath community *Calluna vulgaris-Vaccinium myrtillus-Sphagnum capillifolium* heath (H21¹) outside Scotland; this community forms part of the dry heath feature of this SAC. Other NVC types represented include H8 *Calluna vulgaris-Ulex gallii* heath, H10 *Calluna vulgaris-Erica cinerea* heath

¹ The naming and numbering of communities follows the British National Vegetation Classification scheme.

and H12 *Calluna vulgaris-Vaccinium myrtillus* heath. Broad terraces have allowed the development of blanket mire, wet heath and valley mires. Unlike many upland areas, there are still some good remnants of native woodland supporting oceanic lower plants and ferns.

Public interest in the site is confined to hiking and some camping. However, when compared to other mountainous regions in North Wales, public interest is extremely low.

Rhinog SAC is underpinned by the Rhinog SSSI, and covers all but the main woodland compartments of the SSSI. These areas form part of the Coedydd Derw Meirion SAC and are not dealt with in this plan. The National Nature Reserve, owned and managed by CCW, which forms part of this site was designated a European Biogenetic Reserve in 1992.

2.3 Outline of Past and Current Management

It is the geology of the Rhinogydd that has had the greatest influence on management of the land here. There is no doubt that the rugged, often impenetrable terrain has restricted the advances of modern agriculture, and the area is almost completely unscarred by the proliferation of grant-aided mountain tracks that appeared elsewhere in the 1970's. Of course the geology has also attracted attention over the years too. Manganese ore was mined on a relatively small scale here in the first half of the twentieth century, and the mountain summits attract walkers, albeit in far lower numbers than the more popular peaks of northern Eryri, and Cadair Idris to the south.

Geology, or geomorphology has also indirectly influenced the use by humans of the Rhinogydd over the centuries. Two passes dissect the site from east to west, and these formed important trade routes between the coastal settlements and the commercial and administrative centres to the east of the massif. The so-called Roman Steps in Bwlch Tyddiad were no doubt used by the Romans whilst in Ardudwy, but it is thought that the route has been used since the bronze age, and that much of the improvements to the surface of the path took place during the medieval period.

As in other upland areas of Wales, it is known that cattle were the main grazing animals until the second half of the eighteenth century. Goats played an important part in the farming of the Rhinogydd too, having been valued for their milk and meat, as well as for grazing less accessible ledges, thereby removing the temptation from more prized livestock.

The growth of the wool industry led to an inevitable increase in sheep numbers in the uplands, and a shift to concentrating on the production of lamb in the twentieth century further increased the number of livestock on farms. However the terrain, and the large proportion of bare rock has kept the grazing pressure on the whole relatively light over much of the Rhinogydd.

Heather burning appears to have been a more popular practice in the past, and although some owners continue to make infrequent requests to burn, the relative lack of management by burning over much of the site, and the traditionally light grazing has led to the development of the largest extent of *Calluna* heath in Wales.

Today, several of the farms who manage land in the SAC have Tir Gofal agreements, with some having taken part in its predecessor agri-environment scheme, Tir Cymen. These agreements have generally led to a reduction in livestock numbers on the mountain, with a further reduction, or removal of stock over the winter months.

The goats of the Rhinogydd by now are entirely feral, with none of the farms attempting any commercial exploitation, or claiming ownership. Their increasing population has led to some dissatisfaction locally, with fears that they are filling the gap left by a reduced sheep population, and damaging walls, and silage crops at lower altitude. Goats can cause damage to woodlands by browsing and killing trees as well as inhibiting regeneration.

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 mainly on tenure and fenced management units under different management regimes. Some units are based on the distribution of a feature of interest.

**All units(1-24) are SSSI and SAC as the boundaries of the designations are co-incident.
Unit 1 only is NNR.**

3. THE SAC 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>		
European dry heaths .	NVC H8, 10, 12, 18, 21.	4.1
Old sessile oak woods with Ilex and Blechnum in the British Isles.	NVC W11, 17.	4.2
<i>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</i>		
Blanket bog. * *Priority SAC habitat	NVC M1, M2, M3, 17, 19, 20 Active blanket bogs are those in which the peat is still able to accumulate because of the growth of the surface vegetation.	4.3
Alpine and subalpine heaths	NVC H14 (& U10a moss heath is not listed in the 'Interpretation manual of European Union Habitats' as part of this SAC feature but it is sensible to consider this community under alpine heath in this management plan as U10 is montane heath).	4.4
Depressions on peat substrates	The vegetation forms low-growing communities of sedges, mosses and herbs which may include the white beaked-sedge <i>Rhynchospora alba</i> .	4.5
Northern Atlantic wet heaths with <i>Erica tetralix</i> .	NVC M15, M16	4.1
Lakes (Oligotrophic to mesotrophic) standing waters	(Oligotrophic to mesotrophic) standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> .	4.7
<i>Annex II species present as qualifying features, but not primary reasons for site selection</i>		
Floating water-plantain <i>Luronium natans</i>	Floating water-plantain is a rare, small, white-flowered water plant only found in Europe. In the UK it is considered a nationally scarce plant. It is found in Wales and central and northern England, growing in lakes, reservoirs, ponds, slow-flowing rivers and canals.	4.8

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.

Because many of the features at Rhinog occur in a complex mosaic of communities and intermediate zones between communities, it is more often than not impossible to assign ‘key feature’ status to any one feature. Many of them in any case, such as wet, dry, montane heaths, blanket bogs, peat depressions all generally require the same management and share the same factors. Lakes are always key habitats because of their sensitivity to catchment management including grazing, burning and liming as well as atmospheric nitrogen deposition and acidification.

Rhinog -SAC Management Units												
	1	2	3	4	5	6	7	8	9	10	11	12
Rhinog SAC features												
1. Oligotrophic to mesotrophic standing waters	KH		KH			KH	KH		KH			
2. Northern Atlantic wet heaths	KH	KH	KH	KH	KH	KH	KH	KH			KH	KH
3. European dry heaths	KH	KH	KH	KH	KH	KH	KH	KH			KH	KH
4. Alpine and Boreal heaths	KH						KH					
5. Blanket bogs	KH	KH	KH	KH	KH	KH	KH				KH	KH
6. Depressions on peat substrates of the <i>Rhynchosporion</i>	KH											
7. Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles								KH	KH	KH		KH
8. <i>Luronium natans</i>									KS			

Rhinog -SAC Management Units												
	13	14	15	16	17	18	19	20	21	22	23	24
Rhinog SAC features												
1. Oligotrophic to mesotrophic standing waters		KH								KH		KH
2. Northern Atlantic wet heaths		KH	KH	KH		KH	KH	KH	KH	KH		KH
3. European dry heaths		KH				KH	KH	KH	KH	KH	KH	KH
4. Alpine and Boreal heaths										KH		KH
5. Blanket bogs		KH	KH	KH		KH	KH	KH	KH	KH	KH	KH
6. Depressions on peat substrates of the <i>Rhynchosporion</i>			KH									
7. Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles			KH	KH	KH	KH						
8. <i>Luronium natans</i>												

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 Monitoring²

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.

² Available through www.jncc.gov.uk and follow links to Protected Sites and Common Standards Monitoring.

4.1 Conservation Objective for the European dry heaths (EU 4030) and Northern Atlantic wet heath with *Erica tetralix* SAC features (EU 4010)

- Dry Heath- NVC communities: H8, 10, 12, 18, 21.
 - Wet Heath- NVC communities: M15, M16
-

The vision for the heath land SAC features is for them to be in a favourable conservation status, where all of the following conditions are satisfied:

- 1 The total extent of the dry heath area, approximately 1419 ha, shall be maintained. The area of dry heath should increase at the expense of less desirable vegetation communities such as acid grassland where appropriate.
The total extent of the wet heath area, approximately 324ha, shall be maintained. The area of wet heath should increase in overall at the expense of less desirable vegetation communities. Some areas of wet heath which are degraded blanket bog may be restored to that priority habitat provided that there is a net gain of wet heath within the SAC.
- 2 The distribution of the dry and wet heath will at least be as at its present extent and will preferably be increasing as it is restored in additional areas.
- 3 The typical and uncommon species of the vegetation communities comprising the dry heath and wet heath, including lower plants, will be frequent and abundant. See Table 1. The nationally rare liverwort Welsh notchwort *Gymnocolia acutiloba* should continue to flourish at its known locations within the humid rocky heath.
- 4 The structure of the heath should be maintained and restored, to show natural regeneration by layering and seeding, and to ensure that the component vegetation communities are naturally diverse (refer also to 3 above). Wet heath will often benefit from having a medium to short structure, less than 30cms height. Signs of overgrazing, including ‘suppressed’, ‘topiary’ or ‘drumstick’ growth habits will not be apparent.
- 5 Invasive non-native species such as conifers, rhododendron, Japanese knotweed, Himalayan balsam and bridewort (*Spiraea*) will not be present.
- 6 The surface of the heath will be generally free from trees and at most have only a few individuals at a density of no more than 2 per hectare. Exceptions to this rule are transition zones from woodland to heath land where trees may be denser grading to open heath. Limits for woodland transition zones should be set on a unit or sub-unit basis.
- 7 All factors affecting the achievement of these conditions are under control.

Table 1. Typical species of the Dry heath and Wet heath SAC features

NVC Vegetation community	Typical Species-constants
Dry Heath	
H8 <i>Calluna vulgaris-Ulex gallii</i> heath Very localised heath community –small patches to west of site on lower slopes. Sometimes (small patch NW of site)approaching wet heath (M15/M16) with sparse <i>Ulex gallii</i> (Averis, 2004 shown as H4-page 10)	<u>Constants:</u> <i>Calluna vulgaris</i> <i>Ulex gallii</i> <i>Erica cinerea</i>
H10 <i>Calluna vulagirs – Erica cinerea</i> heath Many patches on shallow soils on south to west facing slopes at low to medium altitudes. H10a very common and extensive.	<u>Constants:</u> <i>Calluna vulgaris</i> <i>Erica cinerea</i> <i>Potentilla erecta</i>

<p>H12 <i>Calluna vulgaris</i> – <i>Vaccinium myrtillus</i> heath</p> <p>H12a most widespread community covering greatest area.</p> <p>The small orchid <i>Listera cordata</i> may be recorded from this community.</p>	<p><u>Constants:</u> <i>Calluna vulgaris</i> <i>Descampsia flexuosa</i> <i>Vaccinium myrtillus</i> <i>Dicranum scoparium</i> <i>Hypnum jutlandicum</i> <i>Pleurozium schreberi</i></p>
<p>H18 <i>Vaccinium myrtillus</i> – <i>Deschampsia flexuosa</i> heath</p> <p><i>V. myrtillus</i> is the most frequent and generally most abundant ericoid, with <i>Calluna vulgaris</i> inconspicuous- a variety of moss-rich and grassy sub-shrub vegetation.</p> <p>H18 occurs here both “naturally” as relatively small patches at higher altitudes, on scree/boulder slopes etc, and more extensively as a result of heavy grazing of H12 such as on Moel Blithcwm and Y Llethr. Some of the near-natural stands are very impressive for the tall <i>Vaccinium</i> and elsewhere for more montane diversity of mosses, lichens, clubmosses and <i>Vaccinium vitis-idaea</i>.</p>	<p><u>Constants:</u> <i>Deschampsia flexuosa</i> <i>Vaccinium myrtillus</i> <i>Dicranum scoparium</i> <i>Pleurozium schreberi</i> <i>Galium saxatile</i> <i>Sphagnum papillosum</i> V-IV <i>Sphagnum tenellum</i> <i>Odontoschisma sphagni</i></p>
<p>H21 <i>Calluna vulgaris</i>– <i>Vaccinium myrtillus</i> – <i>Sphagnum capillifolium</i> heath</p> <p>Heath with a mixed canopy of sub-shrubs with damp layer of luxuriant bryophytes in best examples. Often on north or west facing slopes or on the edge of blanket bog. Tends to be very local. The presence of frequent and abundant <i>Sphagnum capillifolium</i> on heath rather than blanket bog is characteristic of H21. The presence of <i>Blechnum spicant</i> and other ferns can help to pick out this community.</p> <p>There are large expanses of this damp heath. H21a on the steeper slopes facing north-west and east. H21b, the bryophyte rich community is less common here and generally rare in the British uplands.</p> <p>The uncommon oceanic moss <i>Campylopus setifolius</i> occurs here as does the uncommon fern <i>Hymenophyllum wilsonii</i> and an array of western/oceanic liverworts and mosses. The small orchid <i>Listera cordata</i> may be recorded from this community.</p>	<p><u>Constants:</u> <i>Calluna vulgaris</i> <i>Vaccinium myrtillus</i> <i>Deschampsia flexuosa</i> <i>Rhytidiadelphus loreus</i> <i>Pleurozium schreberi</i> <i>Hylocomium splendens</i> <i>Hypnum cupressiforme</i> <i>Dicranum scoparium</i> <i>Plagio undulatum</i> <i>Blechnum spicant</i> <i>Sphagnum capillifolium</i> <i>Potentilla erecta</i></p>
<p><i>Wet heath</i></p>	
<p>M15 <i>Scirpus cespitosus</i> – <i>Erica tetralix</i> wet heath</p> <p><i>Molinia caerulea</i> constant with frequent <i>Scirpus cespitosus</i> characterises this vegetation. Variable with mixtures of constants. There should be no <i>Eriophorum vaginatum</i> or very little. If this species is frequent you are on blanket bog.</p> <p>M15a is common and widespread in places, M15b is the most common type of wet heath and occurs in mosaic with blanket bog.. M15c is less common and M15d is rare.</p>	<p><i>Calluna vulgaris</i> <i>Erica tetralix</i> <i>Molinia caerulea</i> <i>Potentilla erecta</i> <i>Scirpus cespitosus</i></p>
<p>M16 <i>Erica tetralix</i>- <i>Sphagnum compactum</i> wet heath</p> <p>M16 is localised and difficult to separate from M15.</p>	<p><i>Calluna vulgaris</i> <i>Erica tetralix</i> <i>Molinia caerulea</i> <i>Sphagnum compactum</i></p>

Performance indicators for the dry and wet heath SAC Features

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. More detail on factors and management is given in section 5 of this plan.

Performance indicators for features condition: heath		
Attribute	Attribute rationale and other comments	Specified limits
A1. Extent of dry and wet heath	Lower limit is based on the most recent estimate from the Averis (2003) survey.	<i>Lower limit</i> Dry heath: 1419 ha <i>Lower limit</i> Wet heath: 324 ha. <i>Upper limit:</i> None, as defined by geology, soils and topography and provided expansion is at the expense of less desirable vegetation such as acid grassland.
A2. Distribution of dry and wet heath	As mapped.	
A3. Vegetation composition	Typical species (refer to table 1) and uncommon species are important so that natural biodiversity is maintained and enhanced. Refer to NVC H12 and H21 in the table above for examples of uncommon species.	Refer to site quadrat data and Rodwell (1991) for typical species frequencies. Uncommon species distribution should be maintained and/or increased. For monitoring target numbers of indicator species can be derived from quadrat data with reference to CSM bearing in mind local presence/absence and frequencies.
A5. Heath land structure	The heath surface should be regenerating and characteristic of the vegetation community and generally at a height where there is the most plant diversity.	Set limits relevant to particular location/stand in context of the whole site which is of particular interest for its mature heath.
A6. Non-native species	Non-native species especially invasive species such as conifers, rhododendron, Japanese knotweed, Himalayan balsam and bridewort (<i>Spirea</i>) should not be present.	<i>Acceptable limit:</i> None present within SAC. <i>Target:</i> None present within species specific buffer zones around SAC.

Performance indicators for factors affecting the features: heath		
Factor	Factor rationale and other comments	Operational Limits
1. Grazing	Heaths are likely to have always been grazed to some extent, by a variety of herbivores. In an unmodified heathland, species composition is regulated by soil composition, water levels, altitude and aspect, as well as factors such as grazing. Where grazing is too high, or where heavy grazing immediately follows an incident such as a burn, the species composition can become heavily modified and at worse can be replaced by acid grassland. Signs of overgrazing include 'suppressed', 'topiary' or 'drumstick' growth habits of heather.	Favourable management is often summer grazing by sheep, cattle and /or ponies at a rate of 0.225 LSU/ha/year (1.4 ewes) for dry heath, and 0.3LSU/ha/yr (cattle/ponies) for wet heath with frequent/dominant purple moor grass.

F2 Burning	<p>The enormous amount of bare rock, steep slopes and areas with waterlogged ground conditions, has meant that burning has not formed an important part of the traditional management of the upland areas here. Rhinog is of special interest for the quality of its mature heath, which includes in places luxuriant mosses and liverworts; species, which are, fire intolerant/sensitive. Burning generally on this site is therefore not compatible with the maintenance of the nature conservation interest and the restoration of heath to good condition.</p> <p>In certain situations, controlled burning of specific patches may also be a useful management tool to encourage sheep to cover an area more evenly. Within species-poor stands of often NVC H12 burning can be benign provided it is not followed by locally intense grazing as stock concentrate on recently burnt areas.</p>	<p>There is a general presumption against burning within Rhinog SAC but more detail is given below:-</p> <p>(i)Heath on steep rocky slopes with thin soils or heath with abundant lower plants (NVC H 21), which is widespread on Rhinog, or uncommon species should not be burnt.</p> <p>(ii)Wet heath should not be burnt.</p> <p>(iii)Burning should have clearly stated objectives and be limited to : appropriate areas of dry heath (usually NVC H12), at a small scale, well controlled and following good practise and codes. Hence burning of some stands of dry heath may be consented on a case-by-case basis and be time limited to avoid over frequent burning.</p>
F3. Mowing	<p>Cutting can be a viable alternative to burning and offers a controlled, safe way to manage heather without the associated risks of fires. Machinery can sometimes access areas where burning would not be appropriate, although heather may be slower to regenerate, and build up of brash can also retard regrowth on occasions.</p>	<p>Cutting limited to appropriate areas of heath, at a small scale, and agreed on a case-by-case basis.</p>
F4. Afforestation/ conifer encroachment	<p>The presence of conifers (and other invasive non-native species) on heaths immediately places the conservation status of the heath as 'unfavourable'. Conifers/trees shade out the heath vegetation and acidify the groundwater. Associated activities such as heavy plant access, planting, fertiliser input, construction and maintenance of access tracks, and drainage works lead to further damage of the heath. The trees also provide seed-source of future conifers to encroach further out onto the heath.</p>	<p>No planting of conifers or other trees on heath. The removal of conifers seeding on to heath at Cwrt should be continued.</p>
F5. Drainage ditches/ moor grips	<p>Drainage works are carried out to dry the land out but this is not desirable where it leads to drying of the peat soils supporting heath, especially wet or humid 'dry' heath (NVC H21).</p>	<p>No new drainage ditches or drainage work affecting heath land.</p>
F6. Bracken	<p>Bracken is a natural component of the moorland edge communities and of NVC H21. However, where bracken is encroaching at the expense of dry heath, some form of control may be required.</p>	<p>Defined limits for bracken and bracken encroachment bordering heath where it is not expected that woodland may expand.</p>

F7. Development	This factor covers any form of development including construction and maintenance of tracks, erection of infrastructure, masts, towers or turbines as well as quarrying.	Assessment of plans and projects Landscape impacts will be of paramount importance here within Snowdonia National Park.
F8. Recreation and access	Recreational access levels are currently low within the Rhinog SAC and are not considered to be problematic. Surveillance of trampling and erosion is required to define limits as necessary.	The site is designated as access land, although most recreational use is believed to be focused on the existing PROW network.
F9. Off-road vehicle use	Off- road vehicles can cause damage to heathland but this is not considered a problem at present.	Maintain vigilance, record and report any illegal off-road use seen.
F10. Agricultural improvement	Areas have been ploughed and reseeded in the past, or simply converted within the site from heath land to grassland by a pattern of burning and grazing over the years. Application of fertiliser causes a loss or reduction in many species typical of semi-natural habitats as they are no longer able to compete, while ploughing and reseeded causes direct destruction of the habitats. Liming will alter the vegetation composition.	No further agricultural improvement or management resulting in adverse impact on heaths. There should be a presumption against ploughing, fertilising and/or re-seeding any of the semi-natural habitats on this site. Opportunities should be sought to restore agriculturally improved land including acid grassland to heath.

4.2 Conservation Objective for the woodland SAC Feature : “Old sessile oakwoods with *Ilex* and *Blechnum* Woodland”

- NVC communities: W11 & W17

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

1. The total extent of the woodland area, including woodland canopy and scrub, woodland glades and associated dry heath, bracken and grassland shall be maintained as at present, of some 42 ha plus. The woodland feature is broadly in 5 interconnecting ‘zones’ to the west and south-west of Llyn Cwm Bychan.
2. The location of the woodland SAC feature will be as at present. Most of the woodland within Rhinog SSSI is excluded from Rhinog SAC and is included within Meirionnydd Oakwoods and Bat sites SAC (refer to that SAC plan). The woodland covered by this feature is woodland generally without clear boundary between the heath, bog, acid grassland and bracken. Indeed these transitions between the habitats to woodland, which make measuring woodland extent difficult, are of interest in their own right.
3. The tree canopy percentage cover within the woodland area shall be no less than the current cover (excepting natural catastrophic events).
4. The canopy and shrub layer comprises locally native species, as indicated in Table 2, typical of this upland woodland which tends to be less oak and more birch dominated than more lowland examples of this SAC feature.
5. There shall be sufficient natural regeneration of locally native trees and shrubs to maintain the woodland canopy and shrub layer, by filling gaps, joining fragments of woodland and allowing the recruitment of young trees, and encouraging a varied age structure.

6. The typical ground layer species of the woodland SAC feature will be common, see Table 2. It is important that the vegetation does not become rank and overgrown with a height above 40cm and/or dominated by species such as bramble, ivy and young holly. Limits may be set on a unit or compartment basis. Typical lower plants including oceanic species (refer to Table 1 below for an indicative list) should continue to be abundant and/or maintained.
7. The abundance and distribution of uncommon mosses, liverworts, lichens and ferns, will be maintained or increased.
8. There will be a defined number of mature trees per hectare within the existing tree canopy on a unit basis. This will need to be defined by diameter for the upland situation where comparable trees at lower altitude are of c60cm diameter plus for oak and ash and/or with signs of decay, holes etc.
9. Dead wood will be present and consist of a mixture of fallen trees (minimum 1 per hectare), broken branches, dead branches on live trees, and standing dead trees (minimum 1 per hectare). Volumes of deadwood are currently at relatively low levels because the woodlands, in general, have an even-age structure and lack mature trees. Some lower plants are dead wood specialists but these woodlands tend to lack the rare dead wood invertebrate assemblage found in other parts of the UK.
10. Invasive non-native species such as rhododendron, conifers, sweet chestnut, Japanese knotweed and Himalayan balsam will not be present.
11. All factors affecting the achievement of these conditions are under control.

Table 1: Indicative list of Atlantic, sub-Atlantic & western British mosses & liverworts which may be found within the oak woods SAC feature.

✓Species ticked have been recorded from a target note Averis (2004 page 123) as well as recording *Colura calyptriifolia* which is an ex nationally scarce liverwort.

Atlantic species of liverwort	Western British species of Liverwort	Sub-Atlantic species of Moss
<i>Adelanthus decipiens</i>	<i>Bazzania tricrenata</i>	<i>Breutelia chrysocoma</i>
<i>Aphanolejeunea microscopica</i> ✓	<i>Bazzania trilobata</i> ✓	<i>Campylopus atrovirens</i> ✓
<i>Drepanolejeunea hamatifolia</i> ✓	<i>Frullania fragilifolia</i>	<i>Campylopus flexuosus</i>
<i>Frullania teneriffae</i>	<i>Metzgeria conjugata</i>	<i>Entosthodon attenuatus</i>
<i>Gymnomitrium crenulatum</i>	<i>Mylia taylorii</i>	<i>Entosthodon obtusus</i>
<i>Harpalejeunea mollerii</i> ✓	<i>Nowellia curvifolia</i>	<i>Fontinalis squamosa</i>
<i>Herbertus aduncus</i> ssp. <i>hutchinsiae</i>	<i>Riccardia chamedryfolia</i>	<i>Heterocladium heteropterum</i>
<i>Jubula hutchinsiae</i>	<i>Riccardia palmata</i>	<i>Hookeria lucens</i>
<i>Lejeunea lamacerina</i> ✓	<i>Scapania umbrosa</i>	<i>Hyocomium armoricum</i> ✓
<i>Lepidozia cupressina</i>		<i>Hygrohypnum eugyrium</i>
<i>Lepidozia pearsonii</i>		
<i>Marchesinia mackaii</i>		<i>Hypnum resupinatum</i>
<i>Plagiochila exigua</i>		<i>Pterogonium gracile</i>

<i>Plagiochila killarniensis</i> ✓	<i>Oceanic species of liverwort</i>	<i>Ptychomitrium polyphyllum</i>
<i>Plagiochila punctata</i>	<i>Anastrophyllum minutum</i>	<i>Racomitrium ellipticum</i>
<i>Radula aquilegia</i>	<i>Hygrobiella laxifolia</i>	<i>Tetrodontium brownianum</i>
<i>Saccogyna viticulosa</i> ✓	<i>Lophocolea fragrans</i>	<i>Zygodon conoideus</i>
	<i>Metzgeria leptoneura</i>	<i>Ulota drummondii</i>
Sub-Atlantic species of liverwort	Atlantic species of Moss	Western British species of Moss
<i>Anastrepta orcadensis</i>	<i>Fissidens celticus</i>	<i>Dicranodontium denudatum</i> ✓
<i>Calypogeia arguta</i>	<i>Isothecium holtii</i>	<i>Grimmia hartmanii</i>
<i>Douinia ovata</i>	<i>Dicranum scottianum</i>	<i>Hylocomiastrum umbratum</i>
<i>Lejeunea patens</i> ✓	<i>Rhabdoweisia crenulata</i>	<i>Hypnum callichroum</i>
<i>Metzgeria temperata</i>		<i>Sphagnum quinquefarium</i>
<i>Microlejeunea ulicina</i>		<i>Thuidium delicatulum</i>
<i>Odontoschisma sphagni</i>		<i>Trichostomum tenuirostre</i>
<i>Plagiochila spinulosa</i> ✓		<i>Ulota hutchinsiae</i>
<i>Porella arboris-vitae</i>		
<i>Scapania compacta</i>		<i>Oceanic species of moss</i>
<i>Scapania gracilis</i> ✓		<i>Fissidens curnovii</i>

Collated by F.Evans 4 -2-08 from SSSI feature sheets and files for Meirionnydd oakwoods SAC with same SAC feature but as a primary feature. Ed. A.Seddon. **Blue type** additional **oceanic** (Ben Averis) **species** Coed Aber Arto report. Other site data specifically for ‘listed Oceanic species’ not available.

Table 2. Typical species of the Rhinog woodland SAC feature :
Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles.

Tree and shrub layer	Field and ground layer
<i>Betula pubescens</i> , <i>Sorbus aucuparia</i> , <i>Quercus petraea</i> <i>Corylus avellana</i> and other locally native species including <i>Salix aurita</i> , <i>Salix cinerea</i> and <i>Crataegus monogyna</i> .	<i>Agrostis capillaris</i> , <i>Deschampsia flexuosa</i> , ferns including <i>Dryopteris</i> sps , <i>Dryopteris oreades</i> , <i>Blechnum spicant</i> , <i>Oreopteris limbosperma</i> . <i>Calluna vulgaris</i> , <i>Vaccinium myrtillus</i> , <i>Galium saxatile</i> , <i>Molinia caerulea</i> (boggy areas), <i>Oxalis acetocella</i> and very locally <i>Endymion non-scripta</i> . <i>Pteridium aquilinum</i> , <i>Luzula sylvatica</i> , and/or mosses and liverworts sometimes carpeting the woodland floor and boulders including <i>Thuidium tamarisinum</i> , <i>Polytrichum formosum</i> , <i>Rhytidiadelphus loreus</i> . <i>Dicranum majus</i> , <i>Hylocomium splendens</i> , <i>Pleurozium schreberi</i> , <i>Plagiothecium undulatum</i> , <i>Isothecium myosuroides</i> , <i>Mylia taylorii</i> and <i>Scapania gracilis</i> . Woodland here may grade into NVC H21 including the bryophyte rich form of this humid heath

Performance indicators for Woodland SAC Feature

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: woodland

<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of broad-leaved woodland and associated habitats	Lower limit is based on current extent of SAC woodland which needs to be more accurately mapped.	<i>Lower limit:</i> 42 + ha as mapped with transitional zones. <i>Upper limit:</i> Some increases in woodland habitat would be desirable joining up fragments to form a more continuous cover of open woodland.
A2. Location of woodland		
A3. Tree canopy cover	The tree canopy percentage cover within the woodland area is the current cover. If there is a natural catastrophic event assessment should be made to see if follow up management is required.	Tree canopy the current 2008 percentage of woodland area.
A4. Canopy and shrub layer	The canopy and shrub layer comprises locally native species.	No non-natives unless they support recorded interest when a case may be made to retain them provided they are not invasive.
A5. Native tree and shrub regeneration	Natural regeneration of locally native trees that will often be less in the upland situation than lowland. Acceptable regeneration may vary considerably compartment to compartment depending on ecological assessment.	<i>Upper Limit:</i> none set. <i>Lower Limit:</i> regeneration visible with limits set on a unit basis.
A6. Ground layer	The ground layer should be characteristic of the vegetation sub-community and at a height where there is there is the most plant diversity for which that location is special or has been designated. Typical lower plants include oceanic species (refer to table 1 for an indicative list) should continue to be abundant and/or maintained.	The ground layer in these upland woods tends to comprise lower plants and ferns and to be less productive in terms of bramble etc. compared with lowland NVC W11. Woodlands should be open in character, not be overgrown and as a general guide not difficult to walk through because of rank vegetation.
A7. Uncommon mosses, liverworts, lichens and slime moulds	Current populations of uncommon mosses, liverworts, lichens and ferns will flourish and expand where possible.	<i>Upper Limit:</i> none set <i>Lower Limit:</i> The current abundance and distribution should be maintained or preferably increased.
A8. Mature / Veteran trees	There will be a scattering of mature and eventually veteran trees where they are not likely to be affected by health and safety considerations of paths and, tracks.	<i>Upper Limit:</i> none set <i>Lower Limit:</i> This is set at a level appropriate to each unit, which is usually above the current number. Achievement of this limit is dependant on time passing and lack of disturbance/destruction of mature and maturing trees so they may be allowed to grow into veterans.

4.3 Conservation Objective for SAC feature : Blanket Bog (EU 7130)

<p>A9. Dead wood</p>	<p>Dead wood which is important for its associated plants and animals supporting specialised mosses, liverworts, lichens and invertebrates should be present. Tree surgery and timber movement should only usually happen for public or stock safety reasons. Away from public access, standing dead trees will be allowed to decay and fall naturally</p>	<p><i>Upper Limit:</i> Not required <i>Lower Limit:</i> Dead wood will be present and consist of a mixture of fallen trees (minimum 1 per hectare), broken branches, dead branches on live trees, and standing dead trees (minimum 1 per hectare).</p>
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<i>Performance indicators for factors affecting the feature: woodland</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
<p>F1. Grazing</p>	<p>A light level of grazing helps to maintain the moss, liverwort and lichen interest of the woods. Ideally the grazing level should be low enough to allow some natural regeneration. Too heavy grazing can result in no regeneration, excessive trampling, poaching and loss or disturbance of the ground flora and soils. Suitable stocking rates will need to be assessed relating to the current condition of the woodland.</p>	<p>Favourable management is often light summer grazing by sheep, cattle and /or ponies at a rate of 0.05 LSU/ha/year.</p>
<p>F2 Goats</p>	<p>Feral Goats can cause significant damage to young trees and saplings. A large established goat population exists on the Rhinogydd. Feral goats browse the leaves of smaller sapling trees and strip the bark from larger trees during the winter months.</p>	<p>Control of the goat population should continue in the area and on the site to ensure continued survival of sapling trees and woodland regeneration.</p>
<p>F3. Woodland management & Humidity</p>	<p>The assemblage of bryophytes includes those that are dependent upon the maintenance of the fairly high levels of humidity provided by the tree canopy.</p>	<p>Tree felling leading to large gaps in the canopy should not take place and woodland cover should be protected so that further fragmentation does not take place.</p>
<p>F4.Development such as tracks</p>	<p>Development including track and road construction can have an adverse impact on the woodland habitat.</p>	<p>Plan or project should be assessed.</p>

Comprising bog pools and blanket mire of the following National Vegetation Classification (NVC) communities: - M1, M2, M3, 17, 19 & 20.

Other NVC communities, such as M15 and U6 may be considered as degraded blanket bog if on deep peat.

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

1. The total extent of the blanket bog area of approximately 231ha, is maintained.
2. The location and distribution of the blanket bog is maintained.
3. The typical species of the vegetation communities comprising the blanket bog SAC feature are frequent. The bulk of the blanket bog is referable to *Trichophorum- Eriophorum* bog (M17) with more localised stands of *Calluna – Eriophorum* bog (M19). See Table 1.
4. The abundance and distribution of uncommon plants, often indicative of good quality, is maintained or increased.
5. The structure of the blanket bog is maintained and restored where appropriate to include bog pools, depressions, hummocks and hollows as a natural feature of the bog surface. Artificial drainage ditches or moor grips are not present as functioning drains. No significant areas of peat erosion should be present.
6. Invasive non-native species such as conifers, rhododendron, Japanese knotweed, Himalayan balsam and bridewort (*Spirea*) are not present within the SAC and a species-specific buffer area
7. The blanket bog is free from all trees.
8. All factors affecting the achievement of these conditions are under control.

Table 1. Typical species of the Blanket Bog SAC feature

NVC Vegetation community	Typical Species-constants and/or desirable*
Bog Pools	
M1 <i>Sphagnum denticulatum</i> bog pool community	<i>Eriophorum angustifolium</i> <i>Menyanthes trifoliata</i> <i>Sphagnum auriculatum</i> <i>Sphagnum cuspidatum</i>
M2 <i>Sphagnum cuspidatum/Sphagnum recurvum</i> bog pool community.	<i>Erica tetralix</i> <i>Eriophorum angustifolium</i> <i>Drosera rotundifolia</i> <i>Sphagnum recurvum</i> <i>Rhynchospora alba</i>
M3 <i>Eriophorum angustifolium</i> bog pool community.	<i>Eriophorum angustifolium</i>
Blanket Mire	
M17 <i>Trichophorum cespitosum- Eriophorum vaginatum</i> blanket mire. Characteristically frequent <i>Eriophorum vaginatum</i> , <i>Scirpus cespitosus</i> and <i>Molinia caerulea</i> .	<i>Calluna vulgaris</i> <i>Erica tetralix</i> <i>Eriophorum angustifolium</i> <i>Eriophorum vaginatum</i> <i>Molinia caerulea</i> <i>Narthecium ossifragum</i>

	<i>Potentilla erecta</i> <i>Scirpus cespitosus</i> <i>Sphagnum capillifolium</i> <i>Sphagnum papillosum</i> <i>Vaccinium vitis-idaea*</i>
M19 <i>Calluna vulgaris</i> –<i>Eriophorum vaginatum</i> blanket mire. <i>Sphagnum papillosum</i> (I-II)	<i>Calluna vulgaris</i> <i>Eriophorum angustifolium</i> <i>Eriophorum vaginatum</i> <i>Sphagnum capillifolium</i> <i>Vaccinium vitis-idaea*</i> <i>Empetrum nigrum*</i>
M20 <i>Eriophorum vaginatum</i> raised and blanket mire. Poor ombrogenous bog vegetation dominated by <i>Eriophorum vaginatum</i> tussocks.	<i>Eriophorum angustifolium</i> <i>Eriophorum vaginatum</i>

Performance indicators for Blanket bog SAC Feature

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: Blanket Bog</i>	
<i>Attribute, rationale and other comments</i>	<i>Specified limits where appropriate</i>
<u>A1.</u> Extent of blanket bog Lower limit is based on current extent which must be maintained. The blanket bog is in mosaic with wet heath and dry heath.	<i>Lower limit:</i> c.231 ha. No blanket bog area can be lost. Averis (2004).
<u>A2.</u> Location and distribution of blanket bog The current location and distribution within the SAC must be maintained.	
<u>A3.</u> Typical species Typical species will be frequent and form the main dominants (refer to table 1). The unfavourable bog type NVC M20 occurs here in small patches among heavily grazed grasslands in the north and around Y Llethr and Moelblithcwm in the south.	As guide to frequency refer to Rodwell (1991) NVC tables and Averis quadrats (2005).
<u>A4.</u> Uncommon plants Current populations of regionally/locally uncommon plants such as the orchid <i>Listera cordata</i> and liverwort <i>Anastrepta orcadensis</i> , recorded here from NVC M19, will flourish and expand where possible.	<i>Lower Limit:</i> current locations, abundance and vigour of plants.
<u>A5.</u> Bog surface structure The structure of the blanket bog is maintained to include bog pools, depressions, hummocks and hollows as a natural feature of the bog surface. Artificial drainage ditches or moor grips, where present are not functioning as drains but are in filled or blocked to create pools. There should be no significant peat erosion.	The current limited extent of functioning drains should not increase and our target should be zero functioning drains through blanket bog.
<u>A6.</u> Invasive non-native species Invasive non-native species are aliens within the natural blanket bog communities. Their invasive nature means they threaten the integrity of the habitat by competition, shading and often drying of the blanket bog by transpiration. Blanket bog area as in A1 and A2 is lost unless control takes place..	None present within SAC. There should be none within a species-specific ‘buffer’ zone around the SAC.

<p>A7. Tree cover Blanket bog in Wales has been naturally tree-less for a long time. Trees are present occasionally where this habitat is in mosaic on drier areas such as heath and acid grassland or crags away from grazing stock. Blanket bog that has been drained, and planted with conifers and is then cleared or fails is particularly prone to tree regeneration.</p>	<p>Blanket bog in favourable condition is tree less. Target: reducing the current tree cover as part of restoration to favourable condition.</p>
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Performance indicators for factors affecting the feature: Blanket Bog	
Factor, rationale and other comments	Operational Limits
<p>F1. Grazing Blanket bogs are likely to have always been grazed to some extent, by a variety of herbivores. In an unmodified blanket bog, species composition is regulated by the rainwater input and a naturally high water table. Without interference and within high rainfall areas the surface of the bog grows upwards, forming hummocks and hollows in the wettest areas as peat continually forms. This natural blanket bog has a low fairly constant vegetation height with a mattress of layered heather and other woody shrubs over a lower layer of <i>Eriophorum vaginatum</i>. If, as is often the case, the bog is modified, for example by gripping (drainage), burning or heavy grazing, the ‘natural’ system becomes unbalanced. Hence drained and/ or burnt blanket bog tends to have a greater dominance of heather which can become leggy. This can lead to perceived problems of stock access, and calls for further burning or draining to remedy this; resulting in a downward spiral. Mowing can be a short-term solution but in the longer term it is likely to lead to a decrease in ericoid cover. In the short term, it may be possible to achieve widespread stock dispersal by mowing non blanket bog vegetation areas/paths and to restore the naturally high water table by infilling and/or blocking drains. Overgrazing, often with burning, will degrade blanket bog from the better communities to NVC M20 and then to acid /marshy grassland unless restoration measures are put in place.</p>	<p>Favourable management is light summer grazing by sheep, cattle and /or ponies. This will often be at a rate of 0.05 LSU/ha/year (0.33 ewes) but could well be more depending on the land. Ponies or cattle have advantages over sheep due to their tendency to graze coarser grass and rush vegetation without adversely affecting heather/ericaceous cover. Sheep will graze heather intensively in the autumn/winter.</p>
<p>F2 Burning Blanket bog should not be burnt, as burning damages important plant and animal species, especially bog mosses and invertebrates and interferes with the natural development of this vegetation. Past burning practice is likely to be at least partly responsible for the relative rarity of burning-sensitive species. Burning, in combination with intense grazing, is also responsible for damage and loss of areas of good quality blanket bog. Burns scorch and kill bog mosses such as <i>Sphagnum papillosum</i> & other lower plants, removing the heather/ericaceous layer, to reveal the blanket of <i>Eriophorum vaginatum</i> underneath. The cotton grass recovers well from fire, benefits from the ‘fertiliser’ input of ash, and then has a competitive advantage over other plants which can only recolonise slowly. Thus a NVC M19 bog is converted to the degraded NVC M20 and becomes unfavourable. There are occasional incidences of flash burns that pass quickly through the bog and burn the heather with little damage to the underlying vegetation, but these tend to occur more through luck rather than judgement, and thus burning is best avoided.</p>	<p>No burning</p>
<p>F 3. Drainage ditches/ moor grips The wetland habitats and features are profoundly influenced by alterations to the natural drainage regime of the site. Blanket bog is a nutrient-poor system, which arises in areas with a wet, cool climate and</p>	<p>No new drainage ditches. We should also seek to infill/block existing functioning ditches.</p>

<p>a suitable topography (level or gently sloping ground) with little or no water flowing in from surrounding land. Artificial drains cause the bog to dry out and to deteriorate adjacent to the drains. The drains may bring nutrients to the system and the vegetation changes because the bog is no longer only receiving nutrients from the rain. Also, if the drying peat surface becomes exposed, it then oxidises which releases nutrients into the system, dissolved organic carbon into water courses, and carbon dioxide into the atmosphere. This results in similar changes to the sensitive vegetation as well as increased peat erosion. For these reasons, it is important that there should be no new drainage ditches dug in this habitat, and wherever possible old drainage ditches should be blocked or encouraged to infill. This habitat forms a natural sponge which, provided it is not ditched, helps to reduce floods lower down the river system in rainy times while providing plenty of water during summer droughts.</p>	
<p><u>F 4. Recreation and access</u> The site is designated as access land, although most recreational use is believed to be focused on the existing PROW network. Access can cause erosion and compaction and lead to pressure for infra-structure which can damage or destroy parts of the blanket bog if sited on it.</p>	<p>No visible erosion or compaction of blanket bog and no infrastructure on this priority habitat.</p>
<p><u>F 5. Afforestation/ conifer encroachment</u> The presence of trees/conifers on blanket bog immediately places the conservation status of the bog as 'unfavourable'. Conifer/trees adjacent and on the blanket bog provide a seed-source for further encroachment, as well as continuing to dry the bog through transpiration. There will be a presumption against afforestation and other tree planting on the mire vegetation.</p>	<p>The blanket bog should be treeless. No tree planting on blanket bog. (Trees may be acceptable on neighbouring habitats as adjacent stands or mosaic, provided seeding in to the blanket bog is not a problem and other interest has been considered.)</p>
<p><u>F 6. Atmospheric deposition & liming.</u> Atmospheric deposition is a key factor for this ombrogenous ('rain-fed') habitat. According to the Air Pollution Information Service (www.apis.ac.uk), current levels of nitrogen deposition estimated at 13.6 kg N/ha/yr are towards the upper end of the estimated critical load for this habitat (5-10 kg N/ha/year); this is likely to enhance the vulnerability of bog-mosses to competition from graminoids, and also increase the susceptibility of heather in particular to a range of factors, including leaf beetle damage. Catchment liming is harmful to oligotrophic Sphagna and will not be consented on areas of blanket bog.</p>	<p>Policy implementation at a UK level is achieving reductions in atmospheric deposition; this work needs to be continued, and any potential point source emissions carefully screened and controlled. <u>N deposition.</u> The UK Government target should be to ensure less than 10 kg N/ha/yr.</p>
<p><u>F 7. Climate change.</u> Blanket bog will be vulnerable to the anticipated scenario of increased winter-time rainfall and more severe and prolonged summer drought. Practical measures which can be employed to reduce the impacts of climate change include hydrological repair (primarily ditch blocking), conifer removal, and prevention of burning.</p>	<p>See limits for co-factors cited under F12.</p>

4.4 Conservation Objective for Feature : Alpine and sub-alpine heaths (EU Habitat Code: 4060)

- Comprising montane heaths NVC H14 (& U10a moss heath not listed under this SAC feature—see table 3.1 page 7)

Vision for alpine heaths

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

1. The extent of alpine and sub-alpine heath (currently 5.1ha of NVC H14 and possibly less than 1 ha of U10a –not measured) is maintained to be as large as possible such that it occupies all the area suitable for its development. The extent is unlikely to increase significantly here as most suitable areas are already NVC H14.
2. The location and range of the alpine and sub-alpine shall be the summits of Rhinog Fawr, Rhinog Fach and currently fragmentary stands around Craig Wion as well as Y Llethr, which currently supports small patches of moss heath (U10a) within the acid grassland NVC U4e.
3. Vegetation composition: The following characteristic plants will be common in the NVC H14 heath: *Calluna vulgaris*, *Vaccinium myrtillus*, *V.vitis-idaea*, *Empetrum nigrum*, *Racomitrium lanuginosum*, *Hypnum jutlandicum*, *Cladonia* sps. This NVC community also has a less mossy form on Rhinog which is considered to be the most common form of this montane heath in Wales. Typical montane clubmosses, sedges and grasses.

Moss-heath NVC U10a here on y Llethr is “an almost continuous carpet of *Racomitrium lanuginosum* studded with small plants such as *Salix herbacea*, *Vaccinium myrtillus*, *V.vitis-idaea*, *Carex bigelowii* and *Diphasiastrum alpinum*” (Averis 2004) . Typical montane clubmosses, sedges and grasses will also be present.

4. Non-native species are not present.
 5. All factors affecting the achievement of these conditions are under control.
- Performance indicators for the alpine heath Feature**

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:alpine heath</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of alpine and sub-alpine heath	There appears to be little scope to expand the NVC H14 alpine heath but there is some scope for expansion of the moss heath, only found on the summit of Y Llethr, at the expense of the adjacent areas of acid grassland NVC U4e	<i>Lower limit:</i>
A2. Location of alpine and sub-alpine heath	Range should be increasing not decreasing.	
A3. Vegetation composition	See above - point 3.	Refer to quadrats Averis (2004) which form a baseline for the vegetation composition. Key species are listed in point 3 above.
<i>Performance indicators for factors affecting the feature;alpine heath</i>		

Factor	Factor rationale and other comments	Operational Limits
F1. Grazing	Although not normally particularly attractive to sheep, heavy grazing can lead to deterioration in this community, with both browsing and manuring favouring the grass component, and trampling potentially leading to soil erosion. Winter grazing can be particularly damaging to ericoids.	Limits can be set for vegetation heights and grass cover for component communities by referring to Averis 2004.
F2. Trampling/ access	The summit areas are vulnerable to localised erosion of the thin soils by walkers and sheep	<i>Limits:</i> Less than 10% of the feature should be affected by erosion (bare ground) or other ground disturbance such as paths. There should be a presumption against the creation of new paths through this heath.
F3. Non-native species	No non-native species are known to be present.	None
F4. Burning	Although not commonly burnt, the summit areas are potentially at risk from encroaching fires from lower altitude	No burning

Atmospheric nitrogen pollution and other pollution are factors outside the remit of this plan.

4.5 Conservation Objective for Feature : Depressions on peat substrates of the *Rhynchosporion* (EU Habitat Code: 7150)

Vision for the feature “Depressions on peat substrates”

Brief definition of this feature from the JNCC web site is as follows:-

Depressions on peat substrates of the *Rhynchosporion* occur in complex mosaics with lowland wet heath and valley mire vegetation, in transition mires, and on the margins of bog pools and hollows in both raised and blanket bogs. The vegetation is typically very open, usually characterised by an abundance of white beak-sedge *Rhynchospora alba*, often with well-developed algal mats, the bog moss *Sphagnum denticulatum*, round-leaved sundew *Drosera rotundifolia* and, in relatively base-rich sites, brown mosses such as *Drepanocladus revolvens* and *Scorpidium scorpioides*. The nationally scarce species brown beak-sedge *Rhynchospora fusca* and marsh clubmoss *Lycopodiella inundata* also occur in this habitat.

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

1. Extent: The feature occupies all the area suitable for its development within a complex mosaic of mires, wet heaths and bog pools. From a partial survey in 2007 this feature is currently thought to cover about 1 ha.
2. Location:
3. Vegetation composition: The following plants will be common in the “ depressions on peat substrates of the *Rhynchosporion*”: *Rhynchospora alba*, *Sphagnum papillosum*, *Molinia caerulea*, *Narthecium ossifragum*, *Drosera rotundifolia*, *Eriophorum angustifolium*. Extensive mats of *Sphagnum* mosses will also be present locally, and *Menyanthes trifoliata* and *Carex echinata* also feature frequently. Other than *Myrica gale*, dwarf shrubs will be sparse. There will be no non native species present.

4. Uncommon species continue to be present including *Sphagnum magellanicum*, *Drosera intermedia* and the nationally scarce marsh clubmoss *Lycopodiella inundata*.
5. All factors affecting the achievement of these conditions are under control.

Performance indicators for Feature :Depressions on peat substrates

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;depressions on peat		
Attribute	Attribute rationale and other comments	Specified limits
A1. Extent of Depressions on peat substrates of the Rhynchosporion	Based on a 2003 NVC survey, CCW's Phase 2 surveyor, Alex Turner, carried out a detailed survey, and accurately mapped the extent of this feature between July and September of 2006.	<i>Upper limit:</i> As limited by environmental conditions and other habitat types <i>Lower limit:</i> No measurable decline
A2. Location	Range should be maintained	
A3. Vegetation composition	Common Standards Monitoring guidance suggests that 'given the intimate relationship between blanket bog and the Rhynshosporion, with the latter occurring as a minor component of the former, no specific guidance has been developed ...it should be assumed to reflect the condition of the surrounding blanket bog.' Most of the PI's offered here have been field tested at Rhinog by Alex Turner. Some areas were very small and make sampling very difficult, especially on the NNR. Here PI's should be assessed over the whole visible area of Rhynchosporion.	<i>Limits:</i> (i)The total dwarf shrub cover (except <i>Myrica gale</i>) is no more than 50%. (ii)At least one species of <i>Sphagnum</i> is present, as well as either <i>Rhynchospora alba</i> , or <i>Drosera intermedia</i> . (iii)The sward height is between 2 and 30cm high (iv)EITHER: less than 20 shoots of <i>Juncus acutiflorus</i> / <i>J. effusus</i> are present, OR: no more than two small tussocks of <i>Molinia</i> are present.
A4. Uncommon species	Uncommon species continue to be present including <i>Sphagnum magellanicum</i> , <i>Drosera intermedia</i> and the nationally scarce marsh clubmoss <i>Lycopodiella inundata</i> .	
Performance indicators for factors affecting the feature;depressions on peat		
Factor	Factor rationale and other comments	Operational Limits
F1. Grazing	Although the wetter areas often escape the incessant attention of sheep, heavy grazing with its associated nutrient enrichment and poaching, can result in a tight sward where <i>Polytrichum commune</i> can out-compete <i>Sphagna</i> .	No large patches (30 x 30 cms) or frequent <i>Polytrichum commune</i>
F2. Draining or extracting peat	This feature could be seriously damaged by draining or peat cutting. Some areas of the feature within the NNR compartment lie adjacent to a forestry plantation with undercut drains, and may have been influenced by the drying effect. Tree growth would contribute to the drying out of this feature.	There should be no functioning artificial drainage within the feature or adjacent and likely to affect it. No new afforestation or tree planting on or adjacent to this feature.
F3. Burning	This feature could be damaged by fire.	There should be a presumption against

		burning.
F4. Trampling/ access	Sections of footpaths pass through mire communities, albeit mainly on dry substrates or stepping stones, but increasing use could cause localized damage and erosion.	Less than 10% bare ground/peat should be visible including paths. There should be a presumption against the establishment of new routes likely to affect this localised feature.

4.6 Conservation Objective for the lake SAC feature : *Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea (EU 3130).*

Vision for Clear-water lakes feature

The vision for the oligotrophic to mesotrophic (clear-water) lakes SAC feature is where all of the following conditions are satisfied:

- 1 The total extent of the clear-water lakes shall be maintained, some x ha of open water/swamp and immediate lake basin visible on air photographs. The catchments should also be maintained in at least their current condition.
- 2 The location of the clear-water lakes will be as shown on and as referred to by name in the table below.
- 3 The typical species, as listed following, of the vegetation communities comprising the **clear-water lakes** SAC feature will be common.
The vegetation community is characterised by amphibious short perennial vegetation, with shoreweed *Littorella uniflora* and quillworts *Isoetes* spp. being considered as the defining components. On Rhinog, this species often grows in association with water lobelia *Lobelia dortmanna*, awlwort *Subularia aquatica*, bog pondweed *Potamogeton polygonifolius*, bulbous rush *Juncus bulbosus*, floating club-rush *Eleogiton fluitans*, alternate water-milfoil *Myriophyllum alterniflorum* and floating bur-reed *Sparganium angustifolium*, small pondweed *Potamogeton berchtoldii* and bladderworts *Utricularia* spp.
- 4 All factors affecting the achievement of these conditions are under control.

Performance indicators for clear-water and peaty lakes SAC Features

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:lakes</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of clear-water lakes -peaty lakes	Lower limit is based on current extent	<i>Lower limit:</i> current. <i>Upper limit:</i> none, as defined by geology and topography.
A2. Location of clear-water and peaty lakes		
A3. Typical species	Characteristic species are <i>Isoetes</i> spp., <i>Lobelia dortmanna</i> and <i>Littorella uniflora</i> . These three species should dominate the clear-water lakes. At present acid sensitive species such as <i>Myriophyllum alterniflorum</i> and <i>Callitriche hamulata</i> have a restricted distribution within the site. Their spread to more lakes is likely as the severity of this impact diminishes.	<i>Lower Limit:</i> Characteristic species will be at least frequent in each of the clear-water lakes, except where limited by natural substrate conditions (e.g. bedrock). Other native species should continue to be present in those lakes where they currently grow. <i>Upper Limit:</i> None set.
A4. Uncommon plants	Current populations of uncommon plants will flourish and expand where possible. For floating water plantain, a nationally scarce plant, refer to 4.7 of this plan.	<i>Lower Limit:</i> current
A5. Invasive species	Invasive species are undesirable and can out compete native species. Considered further in factors.	<i>Lower Limit:</i> none present
A6. Water Quality: Nutrient levels	Phosphorus (P) and nitrogen (N) are important plant nutrients controlling growth. In naturally nutrient-poor lakes such as Rhinog these should be at barely detectable levels.	<i>Lower Limit:</i> None set <i>Upper Limit:</i> Mean annual total phosphorus (TP) <10 microgrammes / litre
A7. Water Quality: Water clarity	Lakes in Rhinog have clear water as a result of their low nutrient levels and lack of intensive agriculture / forestry in their catchments.	<i>Lower Limit:</i> No decline in maximum depth of plant colonization <i>Upper Limit:</i> None Set
A8. Water Quality: Acid Neutralising Capacity	Rhinog lakes are naturally low in calcium, but are very susceptible to acidification as a result.	<i>Lower Limit:</i> Acid Neutralizing Capacity >20. <i>Upper Limit:</i> None set

Performance indicators for factors affecting the feature:lakes		
Factor	Factor rationale and other comments	Operational Limits
F1. Catchment management	Drainage/moor grips can lead to drying of the adjacent peat, changes in soil chemistry, erosion, changes to the vegetation structure and increased sedimentation. Enrichment and other pollution draining into the lakes from the catchment is also undesirable.	-No new drainage ditches. We should also seek to block existing ditches wherever possible. -Review enrichment -No agricultural improvement -Assessment of plan and projects
F2 Use as reservoirs	Llyn Eiddew-Mawr	Review
F2. Recreation and access, inc fishing and watersports.	Dwr Cymru maintains a track up to Llyn Eiddew-mawr . There is a tarmac road to Llyn Cwm Bychan.	Liming or other measures to alter water quality must be assessed as a plan or project with full scientific justification.
F3. Off-road vehicle use	Off road vehicles can cause damage close to lakes and within catchments on the SAC.	Maintain vigilance, record and report any illegal off-road use seen. Not an issue at present.
F4. Alien species	Species of water weed such as Canadian pondweed and birds e.g Canada geese may be an issue in the future.	Surveillance Keep records of species such as Canada geese breeding in the lakes and consider research to check if the impact is benign.
F5. Climate change	Climate change has the potential to affect the integrity of the site. Some species may die out and others may colonise as their ranges contract or expand. These changes are beyond the scope of this document.	U.K monitoring programme with the use of local site data.

4.7 Conservation Objective for Feature : *Luronium natans* / Floating water plantain

Vision for the Floating water plantain feature

The conservation objective for the Oligotrophic lakes feature as defined in conservation objective number 4.6 must be met. The vision for this feature is for it be in favourable conservation status, where all of the following conditions are satisfied:

1. There will be no contraction of the current *L. natans* extent and distribution from Llyn Cwm Bychan. *L. natans* populations in sections 1 and 2 of the lake will be viable & will be able to maintain themselves on a long-term basis. *L. natans* must be able to complete sexual and/or vegetative reproduction successfully.
2. The lake will have sufficient habitat to support existing *L. natans* populations within their current distribution and for future expansion.
3. All factors affecting the achievement of these conditions are under control.

Performance indicators for Feature

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: L.natans</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Population extent and abundance	Presence of <i>Luronium natans</i> recorded as plants that are attached to substrate. Detached fragments (unless obviously detached during monitoring) will not be counted.	<i>Luronium natans</i> will be present at the periphery of Llyn Cwm Bychan in Sections 1 and 2
A2 Sufficient habitat.	Submerged populations of <i>L. natans</i> require substrates comprising of mud or stable fine gravel or silt in depths of clear water up to 3m.	Sufficient good quality habitat should exist to support the expansion of existing populations. Extent of good quality habitat should not be reduced.
<i>Performance indicators for factors affecting the feature: L.natans</i>		
F1. Dredging	Dredging could directly damage <i>L. natans</i> .	No dredging likely to affect <i>L. natans</i> should occur at Llyn Cwm Bychan
F2. Disturbance by motorised craft	Motorised craft could directly damage <i>L. natans</i> . It is not thought that any motorised boats are used at Llyn Cwm Bychan.	No motorised boating in the western half of the lake.
F3. Lake level management	The lowering of the lake level could seriously affect the extent of suitable substrate for <i>Luronium</i> .	No deliberate lowering of the lake level.
F4. Water quality	<i>L. natans</i> is recorded elsewhere across a spectrum of nutrient levels including fairly eutrophic canals.	No deterioration in water quality.
F5. Alien species	No invasive or alien species are currently recorded near the <i>Luronium</i> beds, but they could in future threaten the population.	No invasive or alien species. Surveillance and vigilance is required.

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:

Features: European Dry Heath and Northern Atlantic wet heath

Condition: Dry heath is currently considered to be **Favourable: Maintained.**

Condition: Wet heath is currently considered to be **Favourable: Maintained.**

Reference: Averis, A., Averis, B., (2004) *Rhinog Site of Special Scientific Interest*. CCW Science Report 654.

The dry heath was condition mapped in 2003 by Averis & Averis (2004). The Averises visually assessed the dry heath against attributes listed in an early draft of the Uplands Common Standards Monitoring Guidance. The vast majority of heath (90%) was mapped as good condition heath-described in the report text as being in exceptional condition. Only relatively small areas around the periphery of the site were identified as suffering from inappropriate burning and/or over-grazing and hence were regarded as in unfavourable condition. However, the Averises do highlight the impact of hard grazing on the H21b (an Atlantic bryophyte-rich sub-community of particular conservation interest) on the north-face of Y Llethr .

The wet heath was condition mapped in 2003 by Averis & Averis (2004). The Averises visually assessed the wet heath against attributes listed in an early draft of the Uplands Common Standards Monitoring Guidance. The bulk of the vegetation was mapped as in good condition (88%) with only peripheral areas around the north, south and western flanks of the site being considered in unfavourable condition.

Status: Dry heath is currently considered to be **Favourable**

Status: Wet heath is currently considered to be **Favourable**

Management Requirements of dry heath and wet heath

Grazing

Current low intensity grazing regimes should be continued. Grazing is particularly heavy on the western part of Cwm Bychan, on Moelblithcwm and Y Llethr. This heavy grazing on Y Llethr has converted the heathery north face to *Vaccinium* heath and acid grassland. Refer to Averis (2004) page 45.

1. Review areas with inappropriate grazing and consider possible action, which can be agreed with land managers.

Burning

2. Continue the current presumption against burning dry heath and wet heath unless a case can be made, usually on NVC H12 dry heath. Refer to section 4.

Conifers

3. Continue removal of seeding conifers adjacent to Cwrt plantation.

Drainage

4. Assess whether this factor is having an effect and requires further action..

Non-native invasive species

Although subject to control, Rhododendron remains a potential problem in the forestry plantation adjacent to the NNR.

5. Maintain vigilance for non-native plants, including rhododendron, and instigate early control.

5.2 Conservation Status and Management Requirements of:

Feature: Oak woods

Condition: the Oak woods feature is currently considered to be **Favourable : Maintained**

Status: the Oak woods feature is currently considered to be **Favourable**

Reference: Bigham, P. & Roberts, R (2007). Condition assessment of Annex 1 woodland habitats at four SACs in north and mid Wales - CCW Environmental Monitoring Report no. 38.

Reference: Averis, A., Averis, B., (2004) *Rhinog Site of Special Scientific Interest*. CCW Science Report 654.

Bigham and Roberts (2007) report indicates that 7/8 compartments are grazed and that the grazed compartments passed for species composition but failed for regeneration (4/7). 2/7 failed for all components of dead wood. The attributes failed on most were standing dead wood and regeneration. Averis (2004) states “the woods with oceanic bryophytes are superb” but this statement encompasses the other main Rhinog SSSI woodlands included within the Meirionnydd oak woods and bat sites SAC. Averis (2004) also states “one of the most interesting things about the Rhinogydd is that, unlike many upland areas, there are still some good remnants of native woodland.

Management Requirements of woodland

Woodland management

1. Continue encouraging dead wood to be left standing and in other forms. Encourage retention of mature-veteran trees.
2. Manage for extension of the woodland/trees into some heath areas to form ‘natural tree lines.

Grazing

3. Review grazed woodland compartments to check whether grazing should be reduced or cease for a period to encourage regeneration, and agree action with land managers.

Non-native invasive species

Rhododendron is present within the garden and lakeside at Dolwreiddiog.

4. Maintain vigilance for non-native plants, including rhododendron, and instigate early control.

5.3 Conservation Status and Management Requirements of:

Feature : Blanket Bog

Condition: The blanket bog is currently considered to be **Favourable: Maintained.**

Status: The blanket bog feature is currently considered to be **Favourable**

Reference: Averis, A., Averis, B., (2004) *Rhinog Site of Special Scientific Interest*. CCW Science Report 654.

The blanket bog was condition mapped in 2003 by Averis & Averis (2004). The Averises visually assessed the blanket bog against attributes listed in an early draft of the Uplands Common Standards Monitoring Guidance. The majority of the bog vegetation was considered to be in good condition (86%) with only stands around the south and north-west peripheries of the site considered to be in poor condition. These peripheral stands were recorded as suffering from excess browsing, with past burning also affecting over half the poorer quality vegetation.

Management Requirements of blanket bog

Burning

1. Maintain the presumption against burning blanket bog.

Grazing

Current low intensity grazing regimes should be continued.

2. Review areas with inappropriate grazing and consider possible action, which can be agreed with land managers.

5.4 Conservation Status and Management Requirements of Feature : Alpine and boreal heaths

Conservation Status of the Alpine Heath Feature

Condition: The alpine heath is currently considered to be **Favourable: Maintained**.

Status: The alpine heath feature is currently considered to be **Favourable**

Factors appear to be under control. Much of this feature is within the NNR.

Reference: Averis, A., Averis, B., (2004) *Rhinog Site of Special Scientific Interest*. CCW Science Report 654.

Being at the southernmost British edge of its distribution here at Rhinog and Cadair Idris, the feature is particularly important and may be vulnerable to climate change. A few paths are maintained by sheep and people on the summit areas, but disturbance to the feature is minimal on the whole. It is thought that a greater grazing pressure on Y Llethr, is maintaining acid grassland areas adjacent to the feature there from developing into the more interesting montane heath, by suppressing species such as *Carex bigelowii*. The extent could potentially be expanded therefore by a reduction in grazing. The condition of the NVC U10a moss heath was described as being in remarkable condition.

- Establish a photo-monitoring project covering the summit areas.

Management Requirements of alpine heath

Grazing

This includes grazing by livestock and feral goats. Montane heaths are not particularly attractive or palatable to sheep, but their locations can bring other specific problems: the altitude means that animals take sanctuary here from insects during warm weather, and also, a problem more commonly seen at the more popular Cadair Idris, is that visitors tend to eat on the summits and some occasionally feed scraps to sheep. Sheep can learn that loitering in these areas can be profitable and put an disproportionate pressure on the vegetation there. On the NNR, these issues, especially the former is more of a problem on Rhinog Fach than on Rhinog Fawr due to the open boundary there with Graig Isaf to the west. Winter grazing can be especially damaging to ericoids.

1. Grazing in the NNR should continue at the present light levels, with a complete removal of stock over the winter months.
2. Reduce the grazing pressure on Y Llethr, in particular during the winter months. Consider a management agreement to top-up the Tir Gofal payment at Graig Isaf, to allow the shepherding of sheep more evenly over management units, and also the use of mineral licks to the same end.
3. Continue to monitor the feral goat population and instigate control where necessary.

Access

This vegetation can be very susceptible to disturbance by trampling. There are a small number of paths on the summits that are being maintained by sheep and walkers, and although the so-called 'open-access' element of the Countryside and Rights of Way Act 2000, gives walkers the right to freely roam all over the summit areas, people naturally tend to stick to established paths. Sheep also stay on their traditional paths. No bridle paths cross this feature.

4. There should be no new paths established on the summit areas, nor should there be any discernible widening of existing paths.
5. Proposals to establish bridle paths will not be supported, and vigilance will be maintained for the use of bicycles or off-road vehicles.
6. No large scale fell events (guide limit of c.100 participants) will be supported.
7. Liaise with the Snowdonia National Park Authority to ensure the continuation of the joint policy not to promote access to the Rhinogydd.

Burning

The summit of Rhinog Fawr, and most of the summit area of Rhinog Fach are within the NNR and are therefore never going to be purposefully burnt. As this vegetation comprises stunted heather or a carpet of mosses, lichens and clubmosses, it is not usually targeted for management by burning. Alpine heath is however susceptible to the spread of fire from adjacent areas of dry heath, or to malicious burning. Due to the slow growth rates at altitude, and the likelihood of loss of dwarf shrubs by aftermath grazing, burning can seriously damage this feature.

8. There will be a presumption against burning on or adjacent to alpine heath.

Atmospheric pollution and climate change

Atmospheric pollution including nitrogen deposition could potentially affect the species composition and structure of the feature. High levels of nitrogen would encourage competing species and inhibit *Racomitrium* regeneration. Actions regarding atmospheric pollution and climate change, which are also likely to be affecting other montane habitats and species, are outside the remit of this plan.

5.5 Conservation Status and Management Requirements of Feature : Depressions on peat substrates of the *Rhynchosporion*

Condition: The Depressions on peat substrates of the *Rhynchosporion* is assessed as **Favourable** on the basis of existing survey data.

Status: The “Depressions on peat” feature is currently considered to be Favourable

Reference: Alex Turner, CCW partial survey 2006. Averis (2004). Regional survey Cwm Bychan.

Alex Turner’s survey in 2006 recorded less than 1 hectare of this feature at Rhinog, much of which was in very small blocks (so much so that many plots were difficult to sample effectively). However, a total of 90 sample points were assessed, and of these 85.6% of all performance indicators met the targets given. It was considered that the management in place was appropriate, and that this habitat was in as good condition as can be seen anywhere in the UK.

There is a considerable difference in ‘feature’ area mapped in Averis (2004) and the less than 1 ha mapped as this feature by Alex Turner, CCW in 2007. Alex was not able to visit all the locations but generally found that the actual area occupied was far less than the area estimated by the Averises who were mapping vast areas of other vegetation and hence approximated proportional cover values.

Management Requirements of the Feature : Depressions on peat substrates of the *Rhynchosporion*

Grazing

Light summer grazing by sheep (and feral goats) is desirable to prevent scrub invasion to the edges of this feature. Although probably too wet for scrub to establish in the feature, the drying effect of developing trees at its edges could be damaging. Grazing is so light within the NNR that these wet communities are scarcely used by sheep or goats.

1. Usually light grazing in summer but some areas benefit from more intensive grazing of the surrounding habitat (Cwm Bychan). No supplementary feeding should take place within or adjacent to the feature.

Drainage

The current extent of the feature is known not to be affected by artificial drainage. Ditches lower the water table and can change the vegetation type to a drier community. Any existing ditches in adjacent areas should be allowed to silt up or at least not be widened or deepened. Eastern areas of the NNR abounding the Forestry Commission Wales plantation, Cwrt, may have suffered some drying due to their proximity to the drained and planted land there.

2. Conifers should continue to be felled on bog and heath, including adjacent to the NNR where this feature occurs, and not restocked. Also encourage water level control or blocking of ditches near the NNR boundary.
2. There will be a presumption against new drainage or peat cutting within or adjacent to the feature and encouragement of ditch blocking, where this would benefit the feature.

Burning

4. There will be a presumption against burning on, or adjacent to this feature.

Access

This vegetation can be susceptible to disturbance by trampling. Although the so-called 'open-access' element of the Countryside and Rights of Way Act 2000, gives walkers the right to freely roam all over the compartments containing this feature, people naturally tend to stick to established paths, and peat depressions are generally too wet to traverse.

5. There should be no new paths established, nor should there be any discernible widening of existing paths adjacent to the feature.

5.6 Conservation Status and Management Requirements of Feature : Clear-water lakes

Conservation Status of the clear-water lakes Feature

Condition: The clear-water lakes feature is currently considered to be **Unfavourable: Recovering** (failed on water quality)

From reference per.com (HL/FE)

Status: The clear-water lakes feature is currently considered to be **Unfavourable**

Reference: 'Site condition assessments of Welsh SAC and SSSI standing water features Reports Name(s) Burgess, A. ,Goldsmith, B., Hatton-Ellis, T. Series CCW Science Report (705) Publication Bangor : Countryside Council for Wales (CCW), 2006'

Management Requirements of lake features

Lake	Data / Monitoring Requirements	Management Actions
Llyn Cwm Bychan	-Regular macrophyte / water quality surveys, including further TP and ANC data. <i>L. natans</i> and relative proportions of elodeids and isoetids should be surveyed.	-Maintain conditions favourable to <i>L. natans</i> . Review- campsite activities and check that drainage from the site does not affect the lake.
Llyn Eiddew-Mawr	-Regular macrophyte / water quality surveys, including further TP and ANC data. <i>L. natans</i> and relative proportions of elodeids and isoetids should be surveyed.	Review abstraction regime and check that it is not detrimental to aquatic vegetation.

Llyn Perfeddau	-Regular macrophyte / water quality surveys, including further TP and ANC data. <i>L. natans</i> and relative proportions of elodeids and isoetids should be surveyed.	None
Gloyw Lyn	-Regular macrophyte / water quality surveys, including further TP and ANC data. <i>L. natans</i> and relative proportions of elodeids and isoetids should be surveyed.	None
Others	Further survey data will be required	None identified.

5.7 Conservation Status and Management Requirements of Feature : Floating water-plantain *Luronium natans* (Code: 1831)

Conservation Status of the *Luronium natans* Feature

Condition: The *Luronium natans* is currently considered to be **Favourable: Maintained**.

Status: The *Luronium natans* is currently considered to be **Favourable**

Reference: “Draft report on file, Dolgellau” Wilkinson, K. (SER)(2005) ‘ Report on *Luronium natans* monitoring in Llyn Cwm Bychan. Wade, P.M. (1998) A sample survey of *Luronium natans* in upland Wales. Unpub. Report commissioned by CCW.

The floating water-plantain is assessed as in a “Favourable” condition on the basis of existing survey data which forms a baseline shallow water survey so no population trends have been established. It may be considered as ‘maintained’ because of the nature of the lake habitat, which appears unlikely to be changing significantly.

Luronium was last recorded from Llyn Cwm Bychan in 1926 before being relocated in 1996 by the Max Wade survey and included in his report (1998). *Luronium* is currently recorded from three shallow water locations along the periphery (0-0.7m deep) of Llyn Cwm Bychan and from deeper waters within the lake (1-4m). Monitoring submerged lake populations of *Luronium natans* is difficult without using diving techniques although there has been some recent exploratory work conducted by CEH into using new and more sensitive hydroacoustic survey equipment to monitor submerged vegetation communities.

- A further baseline survey of *Luronium natans* should be carried out, to include establishing the extent and distribution of the deeper water populations of *Luronium*, and the extent of suitable substrate.

Management Requirements of Feature : *Luronium natans*

Dredging

This is not thought to be an activity that is undertaken at Llyn Cwm Bychan, but dredging could disturb submerged populations and potentially destroy suitable substrate that is either already supporting *Luronium*, or could support an expansion of the species.

1. There will be a presumption against dredging at Llyn Cwm Bychan.

Disturbance by motorised craft

Cwm Bychan has not been the location for any significant water-sports in recent years, and there are currently no jetties or slipways to launch from.

2. Any future proposals to develop Llyn Cwm Bychan as a destination for water-sports and use of motorised craft on the lake will be assessed for likely significant effect on *Luronium natans*.

Lake level management

The lake level naturally fluctuates with climatic conditions, but the current lake level is known to be higher than the historically lower level indicated on old maps.

3. As the *Luronium* is found in shallow waters lowering the lake level is likely to have a significant effect on the *Luronium natans* population.

Non-native species

Vigilance should be maintained for alien species such as *Elodea canadensis* Canadian pondweed and Canada geese.

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?
1	000751	Unit 1	Rhinog National Nature Reserve is managed by CCW. Although lightly grazed, there remains a stock management issue in that much of the western and northern boundaries are open to neighbouring grazed land. Conifer regeneration has been a problem along the eastern boundary, and will remain a management issue as long as FCW continue to restock the adjacent Cwrt plantation. This plantation also has <i>Rhododendron ponticum</i> and is a potential source of seed. The NNR enjoys a much lower level of public access in comparison with the peaks of north Eryri, and Cadair Idris. CCW and the National Park Authority are committed to not promoting access in the Rhinogydd. As a result, footpath erosion and other associated problems are not so obvious, but vigilance is required for new routes or increased use.	Yes
2	000752	Unit 2	A unit whose tenure is uncertain. This is open ground contiguous with Rhinog NNR. Contains areas of H21 damp heath. Although comparatively a quiet area in terms of access, one of the main routes through the SAC -the Bwlch Tyddiad path (part of which is referred to as Roman Steps)- crosses this unit. Vigilance should be maintained by CCW and SNPA for new routes and potential erosion problems.	Yes
3	000753	Unit 3	CL38. Grazing assessment required. Possible heavier grazing in some areas. Also, unconsented burning has occurred here in past years.	Yes
4	000754	Unit 4	Subject to current Tir Gofal application. CCW to advise on management. Unconsented burning has possibly happened here in the past.	No
5	000755	Unit 5	Subject to current Tir Gofal application. CCW to advise on management. Unconsented burning has possibly happened here in the past.	No
6	000756	Unit 6	The northern area of this unit is thought to be more heavily grazed than the remainder. Grazing assessment required. Encourage Tir Gofal agreement.	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
7	000757	Unit 7	Managed under Tir Gofal. Review in future. Unconsented burning has occurred in the past. Extensive grazing by cattle was encouraged during 2007. Investigate & review. The eastern end of the Bwlch Tyddiad (Roman Steps) path crosses this unit, and the owner and SNPA have undertaken some footpath improvements.	Yes
8	000758	Unit 8	The more intensively farmed grassland area of Cwm Bychan associated with the upland unit 7. Managed under a Tir Gofal Agreement. Review in future. Camp site located in one field.	Yes
9	000759	Unit 9	Oligotrophic lake, associated with units 7&8. Managed under Tir Gofal. Review in future. Owner has indicated desire to lower the lake level in the past.	Yes
10	000760	Unit 10	Woodland compartment; tenure unknown.	No
11	000761	Unit 11	Grazing assessment required. Previously a Tir Gofal area. Associated with more intensively farmed unit 12.	Yes
12	000763	Unit 12	Moderately to heavily grazed unit, associated with upland unit 11. Previously a Tir Gofal farm. Encourage new agreement. Unconsented drainage operations have been an issue here in the past.	Yes
13	000764	Unit 13	Unit 13 should be absorbed into unit 12. House and garden.	No
14	000765	Unit 14	Upland unit of Cwm-yr-afon. Managed under Tir Gofal, and (eastern area) under a S15 Management Agreement. Review agreements in future. Small scale controlled burning of dry heath consented in the southwest area.	Yes
15	000766	Unit 15	More intensively managed area of Cwm yr Afon. Managed under Tir Gofal agreement. Review in future.	Yes
16	000767	Unit 16	This unit to be merged with unit 15 in future. Cwm yr Afon; Tir Gofal agreement applies. Review in future.	No
17	000768	Unit 17	This grassland unit to be merged with unit 15 in future. Cwm-yr-afon. Tir Gofal agreement held. Review in future.	No
18	000769	Unit 18	Crafnant upland. Managed under Tir Gofal agreement. Review in future. Small scale controlled burning of dry heath consented in the south area.	Yes
19	000770	Unit 19	Managed under Tir Gofal. Review in future.	No
20	000771	Unit 20	Assess grazing levels. Encourage Tir Gofal agreement.	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
21	000772	Unit 21	Managed along with unit 19, under Tir Gofal. Review in future. Although comparatively a quiet area in terms of access, one of the main routes through the SAC – the Bwlch Drws Ardudwy path – crosses this unit. Vigilance should be maintained by CCW and SNPA for new routes and potential erosion problems.	Yes
22	000773	Unit 22	Large upland block managed under Tir Gofal agreement. Review in future. Mixture of lightly grazed areas and more intense preferential grazing. Y Llethr in particular appears to be heavily grazed, and this may have led to a loss of montane heath on the summit and damp H21 heaths on the north face.	Yes
23	000774	Unit 23	Moelyblithcwm, managed under Tir Gofal in association with unit 22. Review in future. An area of grassland and modified heath and mire.	No
24	000775	Unit 24	This unit is owned by the National Trust, and farmed under a Tir Gofal agreement. Review in future.	No

7. GLOSSARY

This glossary defines 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 ³ : 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

³ See JNCC guidance on Common Standards Monitoring <http://www.jncc.gov.uk/page-2272>

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 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 . ⁴
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.

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

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**.