

PENRHYN QUARRY

PROPOSED EXTENSION TO THE QUARRY WORKINGS

**Appendix 7/4: Report to Inform Habitat Regulations
Assessment**

Prepared for: Breedon Trading Ltd

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- Appendix 01 Eryri SAC Details
- Appendix 02 Eryri Core Management Plan

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Refer to Drawings included as part of the EclA within the ES.

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1.0 Introduction

SLR Consulting Ltd. (SLR) was commissioned by Breedon Trading Ltd to prepare a report to inform a Habitat Regulations Assessment (HRA) for the proposal to extend the area of excavation at Penrhyn Quarry, Bethesda, Gwynedd LL57 4YG (the application site). In summary, planning consent is sought for a small lateral extension to the working area of the quarry, effectively 'squaring off' the workings at its south-western corner.

The proposed development falls completely within the administration of Gwynedd Council (as Mineral Planning Authority) to whom the planning application is made.

In accordance with regulation 63(2) of the Conservation of Habitats and Species Regulations (2017) (as amended); this report provides detail and assessment in respect of likely significant effects to Eryri Special Area of Conservation (SAC), to enable the local planning authority to determine the application in the light of these effects upon the designated site.

1.1 Purpose of the Report

This report provides an assessment on the likelihood for significant effects on Eryri SAC from the proposal to extend the quarry (further details of which are set out in Chapter 3 of the Environmental Statement which supports the planning application). Eryri SAC is immediately adjacent to Penrhyn Quarry, and the proposed Extension Area is entirely within the SAC. The SAC is of international importance for its upland habitats and low nutrient lakes.

This report includes both a Stage 1 – Screening Assessment and a more detailed report to inform a Stage 2 - Appropriate Assessment. The purpose of this report is to provide supporting information to assist the competent authority, in this case Gwynedd Council, to carry out an Appropriate Assessment of the proposals and to determine the application in accordance with regulation 63(2) of the Conservation of Habitats and Species Regulations (2017) (as amended).

This report forms a Technical Appendix to Chapter 7 (Ecology) of the afore mentioned Environmental Statement.

1.2 Objectives of Habitat Regulations Assessment

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures to be addressed. Natural Resources Wales is also commonly consulted in the process of screening projects to establish whether an appropriate assessment is required.

The stages of the HRA are:

- Stage 1: Screening: the process which identifies whether effects upon European Sites of a plan or project are possible, either alone or in combination with other plans or projects and considers whether these effects are likely to be significant. This is broken down into:
 - Confirm whether the project or plan is connected with site management;
 - Examine the nature of the proposed works – are they a project or plan;
 - Identify whether there are potential effects on European Sites based on proximity criteria; and
 - Assess the likely significant effects including in-combination effects
- Stage 2: Appropriate Assessment: the detailed consideration of the effect on the integrity of the European site of the plan or project, either alone or in combination with other plans or projects, with respect to the site's conservation objectives and its structure and function
- Stage 3: Assessment of alternative solutions: the process which examines alternative ways of achieving the objectives of the plan or project that avoid adverse effects on the integrity of the European site

- Stage 4: Assessment where no alternative solutions exist and where adverse effects remain: an assessment of whether the development is necessary for imperative reasons of overriding public interest (IROPI) and, if so, of the compensatory measures needed to maintain the overall coherence of the European network.

The HRA process is further described in Section 3.1.

1.3 Evidence of Technical Competence and Experience

This report was prepared by Jess Colebrook. Jess is a Principal at SLR, a Chartered Environmentalist (CEnv) and Full Member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). Jess has a BSc (Hons) degree in Ecological Science (Wildlife Management) from University of Edinburgh and has worked as a professional ecologist since 2000, including time spent in the statutory sector as Conservation Officer for CCW (now NRW). Jess has prepared reports to inform HRA screening for a wide range of projects.

This report was reviewed by Bob Edmonds CEnv MCIEEM. Bob is the Technical Discipline Manager for the SLR ecology team, with over 20 years' professional experience. He specialises in complex mineral and infrastructure projects and has been responsible for numerous HRA reports for a wide range of sites and projects.

2.0 Relevant Legislation and Policy

2.1 European Nature Directives (Habitats and Birds)

The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora), as amended, continues forms the basis for the designation of Special Areas of Conservation. Similarly, Special Protection Areas are classified under the Birds Directive (Council Directive 2009/147/EEC on the Conservation of Wild Birds), as amended. Collectively, Special Areas of Conservation (SAC) and Special Protection Areas (SPA) are referred to as the UK national site network (previously referred to as the European network). In general terms, these sites are considered to be of exceptional importance for rare, endangered or vulnerable habitats and species within the UK's territory (and previously within Europe). The sites designated for nature conservation under the Habitats and Birds Directives may be referred to as 'European sites'.

2.2 Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law and under this legislation a '*Habitats Regulations Assessment*' is required where a likely significant effect on the European site is predicted.

Regulation 63 of the Conservation of Habitats and Species Regulations 2017, requires a competent Authority to make an Appropriate Assessment of the implications for European site or sites in view of a site's conservation objectives, before deciding to undertake, or give consent, permission or other authorisation for, a plan or project which:

- a. is likely to have a significant effect on a European site, either alone or in combination with other plans and projects; and
- b. is not directly connected with or necessary to the management of that site.

A person applying for any such consent, permission or other authorisation must provide such information as the competent authority may reasonably require for the purposes of the assessment or to enable them to determine whether an appropriate assessment is required.

In considering whether a plan or project will adversely affect the integrity of a European site, the competent authority should consider whether the effects of the proposal on the site, either individually or in combination with other plans or projects, is likely to be significant in terms of the conservation objectives and in respect of each interest feature for which the site was classified/designated Special Area of Conservation (SAC) under the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive), SPA under the EEC Council Directive on the Conservation of Wild Birds (Directive 79/409/EEC – The Birds Directive).

In the light of the conclusions of the appropriate assessment, and subject to regulation 64 (in consideration of alternative solutions and imperative reasons of overriding public interest), the Competent Authority may consent the plan or project that negatively affects a European site only after consulting with the appropriate nature conservation authority, which in this case is Natural Resources Wales. Under regulation 68, where a plan or project is agreed to, the appropriate authority must secure any necessary compensatory measures to ensure that the overall coherence of European network is protected.

Following the UK's withdrawal from the EU on 31st of January 2020; the legislation underpinning the protection of European sites has been updated. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019¹ effectively carries over and transposes EU law on this matter into UK domestic law.

2.3 Planning Policy Wales Edition 11 (PPW)

Special Protection Areas and Special Areas of Conservation are covered by paragraph 6.4.18 of PPW:

6.4.18 SACs and SPAs are of European importance. Under the Conservation of Habitats and Species Regulations (2017) (the Habitats Regulations), all public bodies (including planning authorities) must have regard to the requirements of the EC Habitats and Birds Directives when carrying out their functions. SACs and SPAs on land are underpinned by notification as SSSIs and hence subject to protection afforded by the SSSI provisions. Before authorising development or adopting a land use plan which is likely to have a significant effect on a SAC or SPA (including where outside the boundary of the SAC or SPA), planning authorities must carry out an appropriate assessment of the implications for the designated features, consult NRW and have regard to NRW's representations. The development can normally only be authorised or the plan adopted, if the planning authority ascertains that it will not adversely affect the integrity of the site, if necessary taking into account any additional measures, planning conditions or obligations. Development or policies in land use plans for which there is no alternative solution and which must be carried out for imperative reasons of over-riding public interest may be authorised notwithstanding a negative assessment of the implications, subject to notifying Welsh Ministers. Any necessary compensatory measures to protect the overall coherence of the network of SACs and SPAs must be secured.

2.4 Technical Advice Note (TAN) 5 Nature Conservation and Planning (2009)

Annexe 3 of TAN 5 includes guidance in respect of development proposals likely to affect an internationally designated nature conservation site. It complements the national planning policy in PPW.

¹ <http://www.legislation.gov.uk/uksi/2019/579/contents/made>

3.0 HRA Screening Methodology

It is the purpose of the HRA screening stage to determine, on a precautionary basis, whether a plan or project has the potential to cause a likely significant effect on one or more European sites. If a likely significant effect is identified, an appropriate assessment is required to determine whether it can be concluded that the plan or project alone, or in combination with other plans and projects, will not result in an adverse effect on the integrity of one or more European sites.

The HRA screening stage has been characterised by the European Commission in the guidance document ‘Assessment of plans and projects significantly affecting European sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC’ (“the European Commission Guidance”) as a four step process. These steps are:

- Determining whether the project or plan is directly connected with or necessary to the management of the site;
- Describing the project or plan and the description and characterisation of other projects or plans that in combination have the potential for having significant effects on the European site
- Identifying the potential effects on the European site;
- Assessing the significance of any effects on the European site.”

When each of these steps has been worked through there are two potential outcomes:

1. One or more likely significant effects on designated features of European sites are identified, or there is uncertainty about the absence of likely significant effects, and the project requires an appropriate assessment (Stage 2); or
2. There is an absence of likely significant effects on designated features of European sites as there is no pathway by which such effects could occur and therefore there is no requirement for an appropriate assessment. This is also known as ‘screening out’ the need for further assessment.

The person applying for permission for a plan or project must provide sufficient information to the competent authority, as may be reasonably required, for the purposes of the assessment of likely significant effects. Or to enable the competent authority to determine if an appropriate assessment is required.

In order to determine whether a plan or project is capable of resulting in one or more likely significant effects on a European site it is necessary to understand the activities associated with the construction, operation and maintenance or decommissioning (if relevant) of a project and the effects that this may have on designated features of European sites.

Through the use of this *activity – change – effect* concept, it is possible to identify potential European sites (and their qualifying features) that may be subject to likely significant effects through the determination of a series of search parameters (see Section 3.2). These search parameters can then be extended to identify the other plans and projects that require consideration within the assessment of in combination effects.

3.1 Methodology – identification of the European sites that could be affected by a project

The European sites that should be considered within the screening process are those where there is the potential, on a precautionary basis, for a likely significant effect to be identified for the project alone and in combination with other plans and projects.

Key to determining which European sites are included within this consideration is an understanding of the activities associated with a project, the geographical scale over which changes due to the different activities may

be detectable and the types of receptors (in other words designated features) susceptible to them². An effective and efficient way to determine these relationships in a structured and transparent way is through the use of an *activity – change – effect* model.

Central to the identification of European sites for consideration within the HRA process is the ability to define evidence-based search parameters. In order to achieve this, the following steps are followed:

- Identification of the project activities associated with the construction, operation and maintenance or decommissioning (if applicable) phases that have the potential to result in changes to background environmental parameters (for example air quality, land take)
- Determination of the changes that could occur as a result of the activities identified.
- Determination of the distance over which these changes may occur based on published literature, outputs from the ecological assessment process and/or professional judgement.
- Identification of the potential designated features³ (for example based on Annex II species listed on the Habitats Directive and Annex I birds listed on the Birds Directive, including functional habitat requirements) that may be affected by the identified changes.

The outcome of these steps is a series of search parameters based on potential pathways of effect that can then be used to determine both the European sites for inclusion within the HRA process, due to their physical proximity to the project site, and those linked by way of mobile fauna and associated functional habitat.

3.2 Methodology – Identifying in combination effects and other plans or projects for inclusion

Effects on European sites may result from a proposed development alone and/or in combination with other plans or projects; these potential cumulative effects are described as ‘in combination effects’ in the Habitats Regulations. Within the published literature the main references that provide relevant and current guidance, are:

- Planning Inspectorate (2015) Advice Note 17 Cumulative Effects Assessment relevant to nationally significant infrastructure projects
- Assessment of plans and projects in relation to European sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/: [EN.pdf \(europa.eu\)](#); and
- Renewable UK (2013) Cumulative Impact Assessment Guidelines.

These sources have informed the methods used for the in combination assessment in the case of the project.

The identification of plans and projects to include within the in combination assessment follows the same methodology as that outlined in Section 3.2 for the identification of European sites relevant to a project. Key to the inclusion of other plans and projects within the assessment are the spatial and temporal overlaps that may occur due to the scale of potential changes (for example overlaps in the zones of disturbance caused by simultaneous construction activity) or the areas over which potential receptors may travel (for example a bird may pass through several areas where development is proposed when moving between roosting and feeding grounds in or between designated sites).

Following the identification of plans and projects within the search areas, an initial screening is then undertaken to filter out minor proposals (for example extensions to existing dwellings, minor street works, changes of use

² This includes habitats and species that are not designated features but help underpin the conservation objectives of a European site (for example habitats supporting designated features). This is in line with recent case law – Case C-461/17 Holohan v An Bord Pleanala.

³ Based on baseline environmental survey and desk-study information.

etc.) with no potential to cause likely significant effects in combination and those with no potential to overlap with a project due to differing timescales. Those that are to be included within the in combination assessment are then considered with regard to the identified potential effects. The list of plans and projects identified will also be used to inform stage 2 of the HRA process.

3.3 Methodology for determining Likely Significant Effects

The HRA screening process uses the threshold of likely significant effects to determine whether effects on European sites should be the subject of further assessment. The Habitats Regulations do not define the term likely significant effect. However, in the Waddenzee case (Case C-127/02) the European Court of Justice found that a likely significant effect exists if it cannot be excluded on the basis of objective information that the plan or project will have significant effects on the conservation objectives of the site concerned, whether alone or in combination with any other project. The Advocate General's opinion of the Sweetman case (Case C-258/11) further clarifies the position by noting that for a conclusion of a likely significant effect to be made "*there is no need to establish such an effect ... it is merely necessary to determine that there may be such an effect*".

Under the Habitat Regulations an effect is likely if: 1) it cannot be excluded, in that it is capable of having an effect, on the basis of objective information; and 2) it is likely to undermine the site's conservation objectives, after all aspects of the plan or project have been considered alone and in combination with other plans and projects.

A precautionary approach has been taken to the screening process (Stage 1). Only those designated features and European sites where it can be demonstrated that there is no likelihood of a significant effect occurring (based on the criteria and approach outlined above) have been screened out. This screening assessment does not consider any mitigation measures that are necessary to reduce or avoid likely significant effects on European sites. This follows the judgement of the Court of Justice of the European Union⁴ (CJEU) where it was concluded that the need for measures to avoid or reduce harmful effects presupposes that there is a likely significant effect, and consequently consideration at Stage 2 is required.

Within the screening assessment, each potential effect is considered using information from surveys undertaken to inform the HRA process, published literature (where available), other available baseline data, modelling outputs, the project design and professional judgement (informed by CIEEM, 2018⁵). Where a potential effect has been identified but no likely significant effect is predicted the evidence and reason for reaching this conclusion is provided.

3.4 Baseline Data Collation

Baseline information for the site was gathered through a combination of desk-based study and survey as described in the Ecological Impact Assessment (EclA) submitted as part of the Environmental Statement (Chapter 7), and to which this report is appended.

3.5 Consultation

As part of the planning process, Natural Resources Wales and Gwynedd Council have been consulted in respect of potential ecological impacts of the proposals. In its consultation response dated 12 December 2018 NRW stated (in relation to the original scheme):

⁴Case C-323/17 People Over Wind v Coillte Teoranta.

⁵ Chartered Institute of Ecology and Environmental Management (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal.

Protected Sites

The site lies within the Eryri Special Area of Conservation (SAC) and Eryri Site of Special Scientific Interest (SSSI), mainly designated for their montane habitats, but in this area, more specifically for its blanket bog and wet heath.

The proposal, though within the curtilage of the extant planning consent, extends the footprint of the quarry workings into areas previously excluded (due to their ecological value), notably areas of wet heath and flush.

The existing consent includes the provision of a diversionary leat (which was poorly executed, in the wrong place and required significant remedial works) and the proposal seems to suggest that

this may be moved to a new location. It is difficult to see how this will be done without itself impacting on SAC features.

An area of "compensation" land to the east of the development area was provided for the loss of SAC area (but not feature) in the earlier planning consent. However, this was an area of pre-existing habitat. We have been unable to ascertain what management was undertaken on this area or indeed whether any material change was instituted. This should be detailed within any EIA.

The applicants will need to assess the impact of moving the short section of the leat to accommodate the extension, to ensure that the mitigation that the leat provided for the consented development is not made worse, but potentially improved.

We fully agree that the impact of the proposed development upon protected sites cannot be scoped out, and the applicants should be satisfied that they will provide sufficient information within any application to enable the Local Planning Authority to carry out an assessment under the Conservation of Habitats and Species Regulations 2017.

By satisfying the requirements regarding the SACs, as indicated above, it is likely the requirements for the SSSIs will also be met.

A site visit was made by Phil Oliver (NRW), Lee Clark (Envireau Water) and Welsh Slate on 17 May 2019 to discuss the realignment of the leat to accommodate the larger extension area. During the discussion, it was agreed that placing the leat into culvert for part of its length was the most appropriate way to convey the water around the quarry void. Notwithstanding this, the current proposals no longer involve moving the leat from its current alignment.

Discussion and a site visit was also made with Emily Meilleur, Senior Biodiversity Officer for Gwynedd Council. In her concluding response dated 14.01.19 in relation to assessing impacts to Eryri SAC, Ms. Meilleur stated:

With regard to the quarry extension (into the Eryri SAC & SSSI) and your proposed survey method below I agree with your proposed method for reptiles, birds, otters and badgers, however for vegetation and habitat survey previous data can be used but must be ground-checked and it must extend to the include the deposits of stones and gravels from the leat, and the new features in the landscape i.e. the leat and trackways.

In accordance with the statutory provisions, a pre-application consultation including a copy of the proposed application was undertaken in December 2020. NRW provided a response in January 2021 (refer to Appendix 7/2 of the ES chapter to which this report is appended) raising significant concerns about impacts to Eryri SAC. As a result of NRW's concerns and in order to maintain continuity of mineral extraction, a revised scheme with a smaller extraction area is now proposed and, as noted above, the leat will remain undisturbed, which reduces potential for direct and indirect impacts to Eryri SAC.

4.0 Detailed Description of the Proposed Development

Chapter 3 of the ES to which this document is appended provides a full description of the proposed development. The following section summarises the key points.

4.1 Construction Phase

As an established mineral operation site and infrastructure is already in place. This includes:

- site access;
- wheelwash (located on the metalled access road close to the processing infrastructure);
- haul road (between access point and processing infrastructure);
- processing plant/buildings; and
- internal secondary haul roads between face and plant/overburden disposal areas.

To facilitate the extraction of slate within the proposed extension, soils (including peat) and overburden would be stripped using a hydraulic excavator and transported across the site to the storage locations in articulated dump trucks. Soils and overburden would be removed separately in stages to allow for the working of annual blocks of overlying weathered slate so revealing the high quality slate for production purposes. As per the current planning permission, the precise location of soil storage areas would be provided to the MPA prior to the commencement of soil stripping operations.

Operational Phase

The method of operation within the proposed extension would be in accordance with permitted current practice subject to variation in order to satisfy localised conditions. The following paragraphs provide a description of the operations.

Horizons of weathered slate would be drilled and blasted with tracked loading shovels loading dump trucks for transport to the pre-identified tip. Blasting is undertaken using a delayed sequence which, together with the amount of explosive charge and the shot hole spacing is employed to reduce both noise and ground vibration caused by the explosion in accordance with good environmental practice.

Extraction of the quality slate is undertaken to minimise fragmentation and so maximise the recovery of slate suitable for conversion into roofing or cladding slates.

To reduce the amount of waste slate produced, wire saws were introduced which increased the yield and results in minimal impact on the advancing face. Notwithstanding this, it is not always feasible to employ sawing, such as the lower faces within the quarry workings; in such instances 'black powder' blasting is used for block recovery. By widening the workings, as proposed by the extension, it will become feasible to use sawing on the lower faces which will improve the recovery of primary (roofing) slate and reduce waste.

4.2 Tipping

No changes to the current tipping arrangements are required. Overburden/inferior material will be accommodated within the existing quarry tips.

4.3 Timescales and Operating Hours

Soil strip and overburden removal would commence shortly after consent was granted, anticipated to be late 2022 early 2023. Based on current estimates, reserves of good quality slate (for roofing and aggregates) are sufficient to sustain production for up to 10 years.

Under planning permission ref. C16/1164/16/MW there are no restrictions on operating hours. Notwithstanding this, conditions 17 and 18 set noise limits for certain times of the day, with condition 18 restricting 'temporary operations' (i.e. overburden stripping) to between 0600 and 1900 hours.

Under planning permission ref. C16/1164/16/MW, condition 24 provides restrictions on blasting, drilling and soil stripping/overburden removal as follows:

- Blasting
 - 1000 to 1600 hours Monday to Friday;
 - 1000 to 1300 Saturdays;
 - No blasting on Sundays, bank or public holidays.
- Drilling
 - 0700 to 1900 hours Monday to Friday;
 - 0700 to 1300 hours Saturdays;
 - No drilling on Sundays, bank or public holidays.
- Soil/Overburden stripping
 - 0700 to 1900 hours Monday to Friday;
 - 0700 to 1300 hours Saturdays;
 - No drilling on Sundays, bank or public holidays.

4.4 Drainage

The wet heathland and mire known as Gwaen Gynfi lies down slope of the permitted development at Penrhyn Quarry. The approved mitigation scheme comprises an interception leat up slope of the permitted development area, water is then diverted around the edge of the excavation and discharged back onto the hillside so flowing into Gwaen Gynfi. No changes are proposed to the current hydrological mitigation scheme.

4.4.1 Restoration

As part of the ROMP review a comprehensive restoration scheme was approved for the quarry workings, based on earlier reviews undertaken in 2014 and 2012. The restoration of the proposed extension would be integrated into the wider restoration scheme and employ the same principles to encourage the natural process of regeneration namely:

- all trees, shrubs and heathers as well as many of the grasses and wild flowers etc. are of local provenance, collected from local seed sources, propagated and grown at the purpose-built nursery at Penrhyn Quarry;
- On accessible slopes: trees and shrubs are placed in hessian sacks containing 1.5 litres of compost and buried in place; and
- Where tip slopes are difficult to access on foot seed balling is undertaken. This involves the manufacturing of balls of compost with pre-germinated seeds which are then cast down the tips where they find their own lodging point on the slope. Over time, the seeds develop within their pocket of compost.

5.0 Description of the European Site

This Chapter provides summary information in respect of the relevant European sites that Natural Resources Wales has determined may be affected by the proposal (refer to consultation correspondence noted in Section 3.2). Please refer to Appendix 01 for full details in respect of Eryri SAC. The location of the site in relation to the proposed development site is shown in Drawing P/Q 7/2 within the ES.

5.1 Eryri SAC

Eryri SAC is 19,732.98 hectares (Ha) in extent and comprises three upland massifs, the Carneddau, Glyderau and Yr Wyddfa. The following Annex I habitats are a primary reason for selection of the site:

- 3130 Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*

Llyn Idwal, in the mountains of Snowdonia, represents oligotrophic waters (Type 3) in north Wales. It is a relatively small, shallow, upland corrie, in contrast to Llyn Cwellyn, also in Snowdonia, and complete ice cover has been recorded in winter. No overall change in the lake's water chemistry has been found since the mid-19th century, and the water quality is considered to be high. The site has a good representation of typical plant species, including quillwort *Isoetes lacustris*, water lobelia *Lobelia dortmanna*, shoreweed *Littorella uniflora*, bulbous rush *Juncus bulbosus*, alternate water-milfoil *Myriophyllum alterniflorum* and intermediate water-starwort *Callitriche hamulata*. Bog pondweed *Potamogeton polygonifolius* has been recorded from stream inlets, and pillwort *Pilularia globulifera* is reported from this site. Emergent and floating vegetation is mainly confined to the shallow sub-basin at the south end of the site, where floating bur-reed *Sparganium angustifolium* forms extensive mats, alongside stands of common reed *Phragmites australis*, water horsetail *Equisetum fluviatile* and bottle sedge *Carex rostrata*.

- 6150 Siliceous alpine and boreal grasslands

Snowdonia has the best-developed and most extensive areas of Siliceous alpine and boreal grasslands in Wales and is the largest example of the habitat type south of Scotland. The principal sub-type present is U10 *Carex bigelowii* – *Racomitrium lanuginosum* moss-heath, but there are also fragments of U7 *Nardus stricta* – *Carex bigelowii* grass-heath. This site is representative of the more impoverished southern variants of the habitat type.

- 6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels

Snowdonia is the most southerly site selected and contains the most extensive and diverse examples of hydrophilous tall herb fringe communities in Wales. Fragmentary stands of the habitat type occur on pumice tuff and other base-enriched igneous rocks at a range of altitudes throughout the site. The vegetation is floristically somewhat impoverished compared with Scottish examples but includes many of the species found further north, such as globe-flower *Trollius europaeus*, wild angelica *Angelica sylvestris* and holly-fern *Polystichum lonchitis*. It is important as a southern outlier for arctic-alpines such as alpine saw-wort *Saussurea alpina* and black alpine-sedge *Carex atrata*. There are also some southern species, which are absent further north, for example Welsh poppy *Meconopsis cambrica*.

- 8110 Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*)

Snowdonia is the largest site in Wales representative of siliceous scree. The site has extensive screes of igneous rocks with large stands of U21 *Cryptogramma crispa* – *Deschampsia flexuosa* vegetation; associated species include fir clubmoss *Huperzia selago*. Bryophyte and lichen-dominated screes are also well-represented and include important populations of rare and local montane and oceanic species, such as *Marsupella adusta*, *Marsupella stableri* and *Cornicularia narmonoerica*.

- 8210 Calcareous rocky slopes with chasmophytic vegetation

Snowdonia is representative of Calcareous rocky slopes with chasmophytic vegetation at one of its most southerly outposts in the UK, and contains the most extensive and diverse examples of these communities in Wales. Crevices in base-rich igneous rocks support a characteristic assemblage of plants, with a large number of arctic-alpine species. These include a number of nationally rare species, such as alpine saxifrage *Saxifraga nivalis*, tufted saxifrage *S. cespitosa*, alpine meadow-grass *Poa alpina* and alpine woodsia *Woodsia alpina*. A species of particular interest is the Snowdon lily *Lloydia serotina*, which in the UK occurs only in Snowdonia, in rock cracks and crevices on calcareous and more siliceous substrates, and is here at its northern limit in western Europe.

- 8220 Siliceous rocky slopes with chasmophytic vegetation

Snowdonia, north Wales, is representative of Siliceous rocky slopes with chasmophytic vegetation at the southern edge of the range of the habitat type. Acidic crevice communities occur throughout the site on igneous outcrops and include populations of stiff sedge *Carex bigelowii*, fir clubmoss *Huperzia selago* and forked spleenwort *Asplenium septentrionale*. Atlantic species, including Wilson's filmy-fern *Hymenophyllum wilsonii* and a wide range of bryophytes, are also well-represented.

Annex II species that are a primary reason for selection of this site comprise:

- 1393 Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus*

This is an upland site in north Wales for Slender green feather-moss *Drepanocladus vernicosus*, which has been recorded in flushes up to an altitude of 450 m.

- 1831 Floating water-plantain *Luronium natans*

Snowdonia in north Wales is an example of a montane lake habitat supporting floating water-plantain *Luronium natans*. Records date back to the 18th century, indicating that habitat conditions are particularly favourable for this species.

A number of Annex I habitats are present as a qualifying feature, but are not a primary reason for selection of this site. These include:

- 4010 Northern Atlantic wet heaths with *Erica tetralix*;
- 4030 European dry heaths;
- 4060 Alpine and Boreal heaths;
- 6170 Alpine and subalpine calcareous grasslands;
- 6230 Species-rich *Nardus* grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe);
- 7130 Blanket bogs (* if active bog);
- 7150 Depressions on peat substrates of the Rhynchosporion;
- 7220 Petrifying springs with tufa formation (Cratoneurion);
- 7230 Alkaline fens;
- 7240 Alpine pioneer formations of the Caricion *bicoloris-atrofuscae*; and
- 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles.

5.1.1 Conservation Objectives

Due to the size of the site, it has been separated into Management Units for the purposes of objective setting and management. The Application Site is adjacent/within Management Units 70 Gwaen Gynfi and 50 Dolawen. The SAC features within these units include⁶:

- European Dry Heath (Annex 1 code 4030);
- Blanket Bog (Annex 1 code 7130);
- Wet Heath (Annex 1 code 4010);
- Summit Heath (annex 1 code 6150);
- Tall Herb Ledges (annex 1 code 6430);
- Crevice vegetation on Calcareous Substrate (annex 1 code 8210);
- Alpine and Boreal Heath (Annex 1 code 4060);
- Siliceous Scree (annex 1 habitat 8110);
- Crevice Vegetation on Siliceous Substrate (Annex 1 code 8220); and
- Lakes (Annex 1 code 3130).

Conservation objectives have been set for each of these within the Core Management Plan (2008) (included in Appendix 02 for ease of reference) and comprise a statement of Vision and Performance Indicators.

⁶ From table 3.1.5 in the Core Management Plan (2008)

6.0 Stage 1: Screening Assessment

6.1 Zone of Influence

The first step in the screening process is the identification of SAC, SPA and Ramsar sites within the zone of influence of the project. The potential Zone of Influence for developments of this size is typically limited to the Site and immediate surrounding area, e.g. where there are surface water pathways or other ecological connections to Natura 2000 sites outside this distance.

The closest Natura 2000 Site to the proposed development site is Eryri SAC. The proposed development is located within Eryri SAC.

For the purposes of this screening the potential zone of influence for the proposed development is limited to the Eryri SAC. All other Natura 2000 sites are not likely to be affected given the small scale of the proposed development, the distance between them and the project site and the lack of connectivity via surface water pathways and/or landscape features.

6.2 Potential Impacts

The proposed extension to the quarry has the potential to result in impacts and effects on Eryri SAC due to the following:

- Direct, permanent and irreversible loss of 2.26 ha of vegetated habitat. None of the habitat is a qualifying feature of the SAC, nor are any qualifying species of the SAC present. None of the habitat is an Annex 1 type. Whilst this area is within the SAC boundary, it is not considered to contribute to site integrity⁷.
- Indirect, increased grazing pressure on undisturbed parts of the SAC, outside of the application boundary, as a result of loss of the above area from Gwaen Gynfi common, which includes habitats for which the SAC is designated. The common covers 314ha, less the 3.7 ha that has already been subject to mineral extraction (2012 re-alignment, consent ref C12/0874/16/MW), i.e. 310.3ha remains. The total permitted level of grazing is 240 sheep and 3 cows, equivalent to 39 Livestock Units (LU, where a breeding ewe is 0.15 LU and cattle are 1). The maximum level of grazing experienced is therefore 0.1256 LU/ha. If the 2.26 ha grazing at the extension area is lost such that 308.04 ha of the common remains, then grazing pressure would increase to 0.1266 LU/ha, an increase of 0.001 LU/ha.
- changes to habitat quality or extent due to dust deposition on areas outside of the quarry workings.

No other identified impacts with the potential to affect qualifying features of the SAC have been identified.

6.3 Screening Assessment

This section reviews the interest features of the designated site and considers the likelihood of a significant effect (LSE) resulting from the proposed project. Where a likely significant effect cannot be screened out, this interest feature is taken forward for further assessment.

The screening assessment follows the methodology described above and has been informed by the view presented by NRW and Gwynedd Council in their consultation responses.

⁷ where the 'integrity of the site' can be defined as 'the coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and / or populations of species for which the site is or will be classified' (as defined here http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision_of_art6_en.pdf)

Table 6-1
Eryri SAC – Screening of Likely Significant Effects of Proposed Extension at Penrhyn Quarry

Designated Site Qualifying Interest Features	Potential effects of the project	Likely significant effect for the project alone
3130 Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i>	None predicted There are no such features within, adjacent or hydrologically linked with the Application Site.	No LSE predicted.
6150 Siliceous alpine and boreal grasslands	None predicted There are no such habitats within or adjacent to the Application Site.	No LSE predicted.
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	None predicted There are no such habitats within or adjacent to the Application Site.	No LSE predicted.
8110 Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>)	None predicted There are no such habitats within or adjacent to the Application Site.	No LSE predicted.
8210 Calcareous rocky slopes with chasmophytic vegetation	None predicted There are no such habitats within or adjacent to the Application Site.	No LSE predicted.
8220 Siliceous rocky slopes with chasmophytic vegetation	None predicted There are no such habitats within or adjacent to the Application Site.	No LSE predicted.
1393 Slender green feather-moss <i>Drepanocladus (Hamatocaulis) vernicosus</i>	None predicted This species occurs in base rich flushes; there are no suitable habitats for it within or adjacent to the Application Site, nor are any hydrologically linked to it.	No LSE predicted.

Designated Site Qualifying Interest Features	Potential effects of the project	Likely significant effect for the project alone
1831 Floating water-plantain <i>Luronium natans</i>	<p>None predicted</p> <p>This species occurs in base rich flushes; there are no suitable habitats for it within or adjacent to the Application Site, nor are any hydrologically linked to it.</p>	<p>No LSE predicted.</p>
4010 Northern Atlantic wet heaths with <i>Erica tetralix</i> ;	<p>There are no such habitats within the Application Site. It occurs adjacent to the site, at Gwaen Gynfi.</p> <p>Indirect changes to habitat quality or extent could occur as a result of 0.001 LU/ha increased grazing pressure affecting land outside of the quarry. This increase is so small that it not considered to result in measurable or material change to the quality, extent, structure or function of any of the habitats present at Gwaen Gynfi, including those for which the SAC is designated.</p> <p>Changes to habitat quality or extent could occur due to dust deposition on areas outside of the quarry. However,</p> <ul style="list-style-type: none"> • Potential dust generated by on-going operations is considered to remain unchanged and therefore does not represent an increase in the potential for dust impact compared to existing operations. Generated dust is not considered to be significantly alkaline or acidic, or at a significant risk of becoming airborne. • Standard industry good practice is followed to minimise dust generation and to suppress dust; these are for the benefit of site staff health and safety rather than for ecological reasons and on that basis are NOT deemed to be mitigation for the purpose of this assessment. • It is concluded since that there is low risk of airborne dusts, and the neutral chemical composition of the dust (i.e. dust arising from a similar geology as the receiving habitats and dust that is not nutrient or mineral rich), there is no likely significant effect on any qualifying habitats within the SAC. 	<p>No LSE predicted</p>

Designated Site Qualifying Interest Features	Potential effects of the project	Likely significant effect for the project alone
4030 European dry heaths	<p>There are no such habitats within the Application Site. It occurs adjacent to the site at Gwaen Gynfi to the west, and on the mountain slopes to the east.</p> <p>Indirect changes to habitat quality or extent could occur as a result of 0.001 LU/ha increased grazing pressure affecting land outside of the quarry. This increase is so small that it not considered to result in measurable or material change to the quality, extent, structure or function of any of the habitats present at Gwaen Gynfi, including those for which the SAC is designated.</p> <p>Changes to habitat quality or extent could occur due to dust deposition on areas outside of the quarry.</p> <ul style="list-style-type: none"> • Potential dust generated by on-going operations is considered to remain unchanged and therefore does not represent an increase in the potential for dust impact compared to existing operations. Generated dust is not considered to be significantly alkaline or acidic, or at a significant risk of becoming airborne. • Standard industry good practice is followed to minimise dust generation and to suppress dust; these are for the benefit of site staff health and safety rather than for ecological reasons and on that basis are NOT deemed to be mitigation for the purpose of this assessment. • It is concluded since that there is low risk of airborne dusts, and the neutral chemical composition of the dust (i.e. dust arising from a similar geology as the receiving habitats and dust that is not nutrient or mineral rich), there is no likely significant effect on any qualifying habitats within the SAC. 	No LSE predicted
4060 Alpine and Boreal heaths	<p>None predicted</p> <p>There are no such habitats within or adjacent to the Application Site.</p>	No LSE predicted.

Designated Site Qualifying Interest Features	Potential effects of the project	Likely significant effect for the project alone
6170 Alpine and subalpine calcareous grasslands	None predicted There are no such habitats within or adjacent to the Application Site.	No LSE predicted.
6230 Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	None predicted There are no such habitats within or adjacent to the Application Site.	No LSE predicted.
7130 Blanket bogs (* if active bog)	<p>There are no such habitats within the Application Site. It occurs adjacent to the site, at Gwaen Gynfi.</p> <p>Indirect changes to habitat quality or extent could occur as a result of 0.001 LU/ha increased grazing pressure affecting land outside of the quarry. This increase is so small that it not considered to result in measurable or material change to the quality, extent, structure or function of any of the habitats present at Gwaen Gynfi, including those for which the SAC is designated.</p> <p>Changes to habitat quality or extent could occur due to dust deposition on areas outside of the quarry. However;</p> <ul style="list-style-type: none"> • Potential dust generated by on-going operations is considered to remain unchanged and therefore does not represent an increase in the potential for dust impact compared to existing operations. Generated dust is not considered to be significantly alkaline or acidic, or at a significant risk of becoming airborne. • Standard industry good practice is followed to minimise dust generation and to suppress dust; these are for the benefit of site staff health and safety rather than for ecological reasons and on that basis are NOT deemed to be mitigation for the purpose of this assessment. • It is concluded since that there is low risk of airborne dusts, and the neutral chemical composition of the dust (i.e. dust arising from a similar geology as 	No LSE predicted.

Designated Site Qualifying Interest Features	Potential effects of the project	Likely significant effect for the project alone
	the receiving habitats and dust that is not nutrient or mineral rich), there is no likely significant effect on any qualifying habitats within the SAC.	
7150 Depressions on peat substrates of the Rhynchosporion	<p>There are no such habitats within the Application Site.</p> <p>Indirect changes to habitat quality or extent could occur as a result of 0.001 LU/ha increased grazing pressure affecting land outside of the quarry. This increase is so small that it not considered to result in measurable or material change to the quality or extent of any of the habitats present at Gwaen Gynfi, including those for which the SAC is designated.</p> <p>Changes to habitat quality or extent could occur due to dust deposition on areas outside of the quarry. However;</p> <ul style="list-style-type: none"> • Potential dust generated by on-going operations is considered to remain unchanged and therefore does not represent an increase in the potential for dust impact compared to existing operations. Generated dust is not considered to be significantly alkaline or acidic, or at a significant risk of becoming airborne. • Standard industry good practice is followed to minimise dust generation and to suppress dust; these are for the benefit of site staff health and safety rather than for ecological reasons and on that basis are NOT deemed to be mitigation for the purpose of this assessment. • It is concluded since that there is low risk of airborne dusts, and the neutral chemical composition of the dust (i.e. dust arising from a similar geology as the receiving habitats and dust that is not nutrient or mineral rich), there is no likely significant effect on any qualifying habitats within the SAC. 	No LSE predicted.
7220 Petrifying springs with tufa formation (Cratoneurion)	None predicted There are no such habitats within or adjacent to the Application Site.	No LSE predicted.

Designated Site Features	Qualifying Interest	Potential effects of the project	Likely significant effect for the project alone
7230 Alkaline fens		None predicted There are no such habitats within or adjacent to the Application Site.	No LSE predicted.
7240 Alpine pioneer formations of the Caricion bicoloris-atrofuscae		None predicted There are no such habitats within or adjacent to the Application Site.	No LSE predicted.
91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles		None predicted There are no such habitats within or adjacent to the Application Site.	No LSE predicted.

6.3.1 In-Combination Effects

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a proposed development results in individually insignificant effects that, when considered in-combination with effects of other proposed or permitted plans and projects, can result in significant effects (CIEEM, 2018⁸).

However, no plans or projects have been identified in the vicinity of the site that could potentially give rise to cumulative impacts.

⁸ CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland; Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environmental Management, Winchester.

7.0 Conclusion

The purpose of this report is to provide supporting information to assist the competent authority, in this case Gwynedd Council, to carry out a Habitats Regulations Assessment of the proposed extension at Penrhyn Quarry, as required under Regulation 63 of the Habitats Regulations 2017 (as amended).

The project will result in the permanent loss of 2.26 ha of grassland and bracken which is not a qualifying feature of the Eryri SAC, and which does not support any qualifying species. Mitigation for the loss is not proposed.

A precautionary approach has been taken in respect of possible disturbance to SAC interest features adjacent to the application site (wet heath, dry heath and blanket bog) as a result of potential dust deposition and very slight increase in potential grazing pressure. It is concluded that since there is low risk of airborne dusts, and the neutral chemical composition of the dust (i.e. dust arising from a similar geology as the receiving habitats and dust that is not nutrient or mineral rich), there is no likely significant effect on any qualifying habitats within Eryri SAC as a result of lateral extension to quarrying activity. Similarly, an increase in 0.001 LU/ha at adjacent common land is not considered to give rise to any measurable effect.

The potential for incombination effects during construction has been considered. However, no plans or projects have been identified in the vicinity of the site that could potentially give rise to cumulative impacts.

No likely significant effects have been identified as a result of the proposals, either alone or in-combination with other plans or projects.

APPENDIX 01

Lleoliad mapiau unedau rheoli ar raddfa fawr.

Location of large scale management unit maps.

Eryri / Snowdonia

Map 1 / 1

Côd Safle y GE
 EC Site Code **UK0012946**

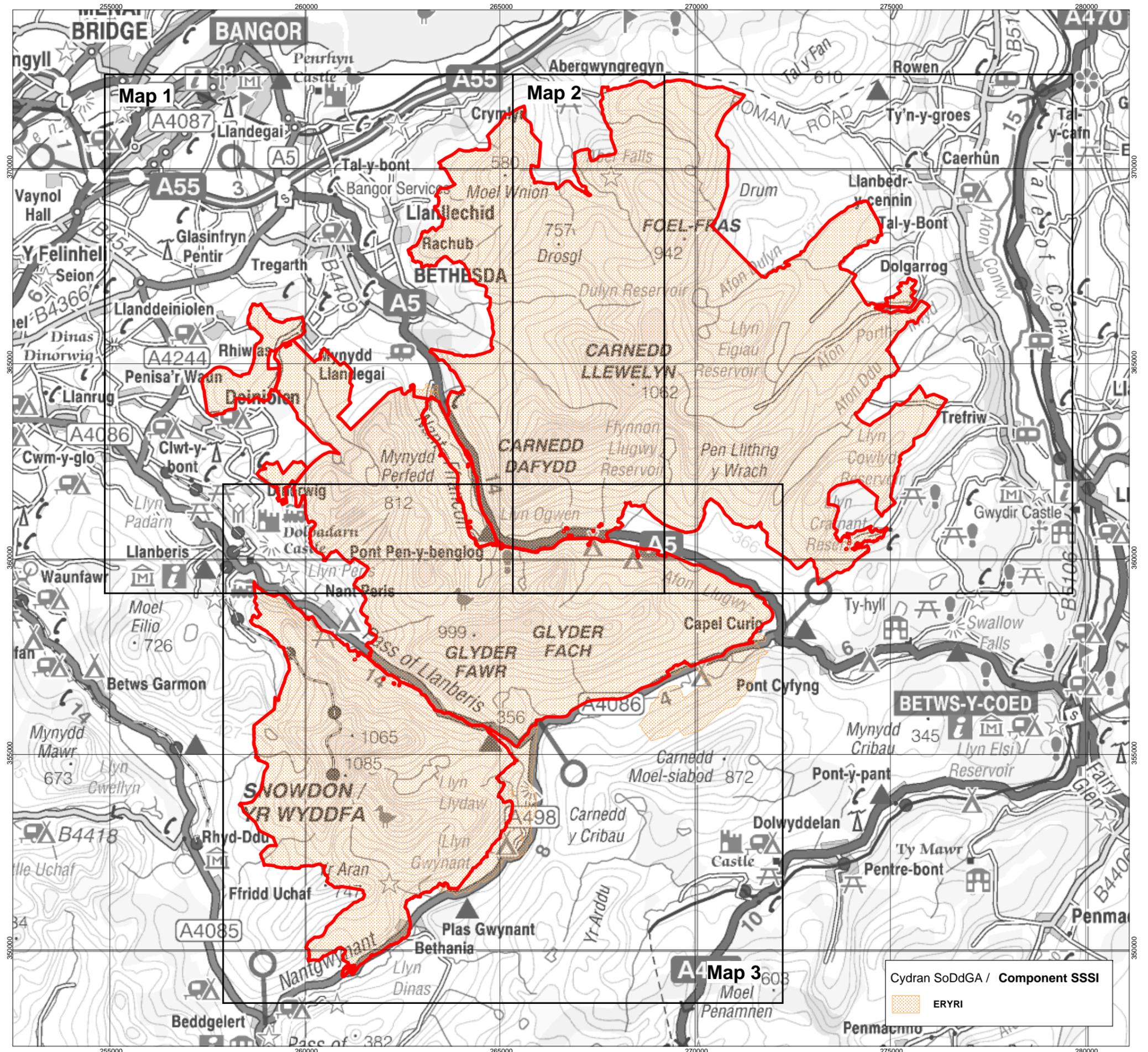
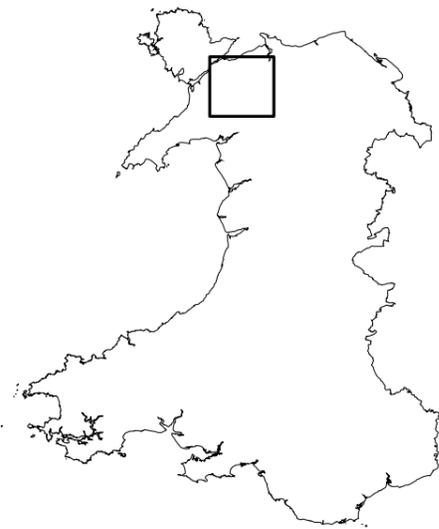
 Ardal Cadwraeth Arbennig (ACA)
Special Area of Conservation (SAC)

Tafuniad map: Y Grid Cenedlaethol Prydeinig
Projection: British National Grid

Graddfa
Scale 1:100,000 16/04/2008



Atgynhychir y map hwn o ddeunydd yr Arolwg Ordnans gyda chaniatâd Arolwg Ordnans ar ran Rheolwr Llyfrfa Ei Mawrthdi. Hawffraint y Goron. Mae atgynhychu heb ganiatâd yn torri hawffraint y Goron a gall llyn arwain at erlyniad neu achos sifil. Rhif trwydded Cyngor Cefn Gwlad Cymru 100018813. 16/04/2008
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Cydran SoDdGA / Component SSSI
 **ERYRI**

Unedau Rheoli
Management Units

Eryri / Snowdonia

Map 1 / 3

Côd Safle y GE
 EC Site Code **UK0012946**

 Ardal Cadwraeth Arbennig (ACA)
Special Area of Conservation (SAC)

 Safle o Bwysigrwydd Rhyngwladol Cytundeb Ramsar
Wetland of International Importance, Ramsar Convention
Llyn Idwal

 Ffiniau'r unedau a chyfeirnodau
Boundary of unit and Ref number

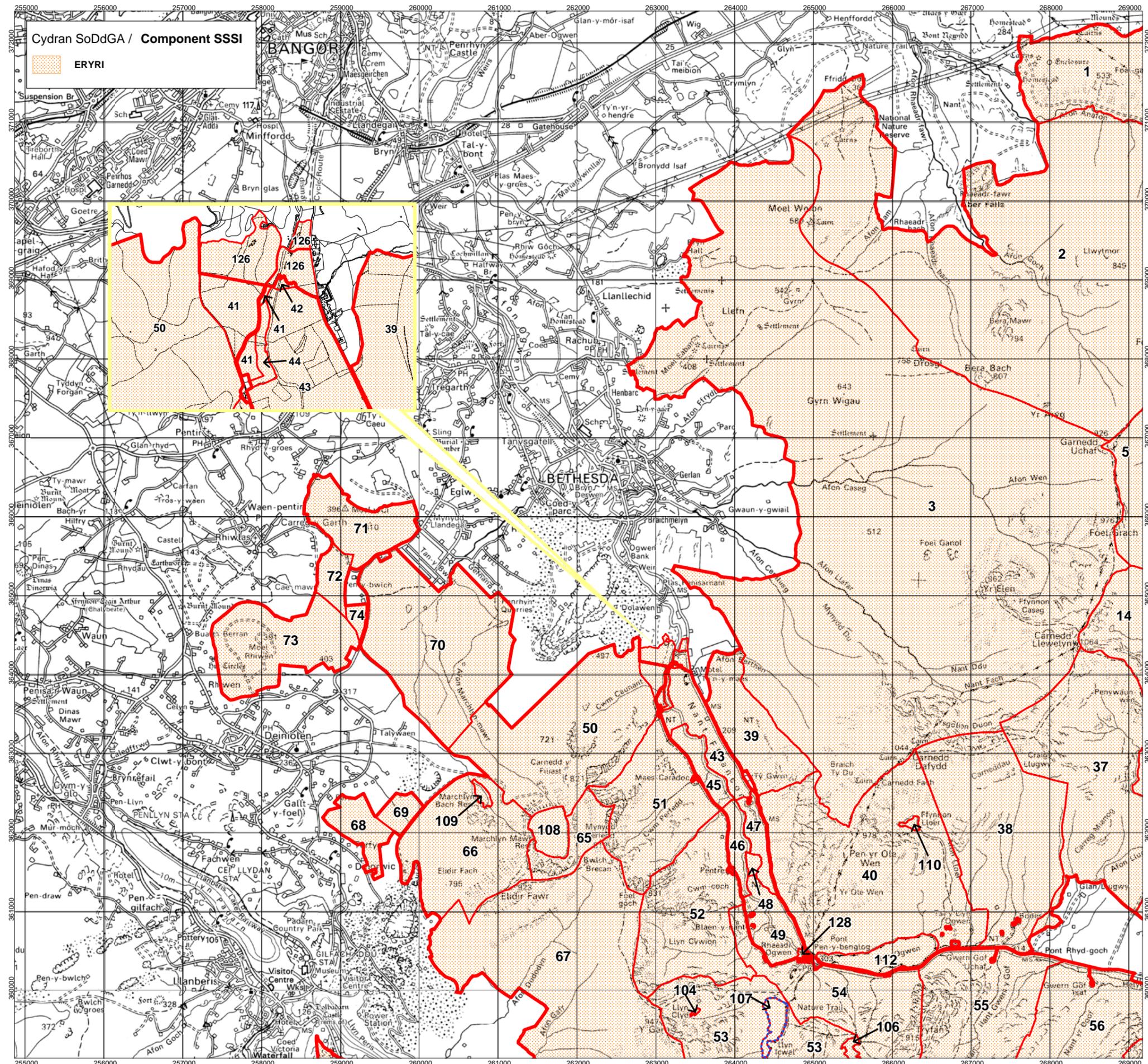
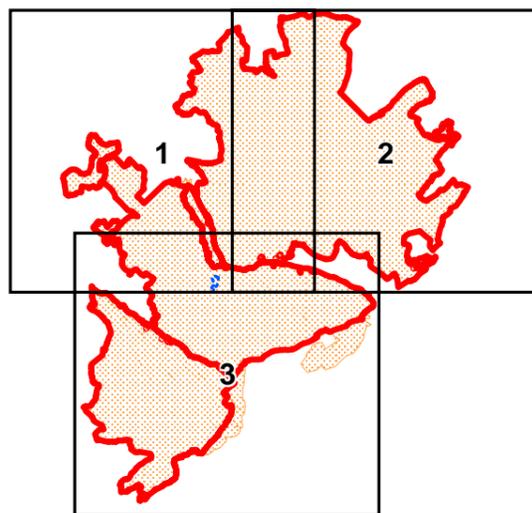
Tafliad map: Y Grid Cenedlaethol Prydeinig
Projection: British National Grid

Graddfa
Scale 1:50,000 16/04/2008



Noder: Data wedi ei gipio ar raddfa 1:2,500, rhoddwyd ar raddfa 1:50,000.
 Mae mapiau graddfa-fawr swyddogol ar gael gan CCGC.
Note: Data captured at 1:2,500 scale, placed on 1:50,000 scale.
A definitive large scale map is available on request from CCW.

Atgynhychir y map hwn o ddeunydd yr Arolwg Ordnans gyda chaniatâd Arolwg Ordnans ar ran Rheolwr Llyfrfa Ei Mawrthi Hafwraint y Goron.
 Mae atgynhychu heb ganiatâd yn torri hawffraint y Goron a gall hyn arwain at erlyriad neu achos sifil.
 Rhif trwydded Cyngor Cefn Gwlad Cymru 100018813. 16/04/2008
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☰ Special Areas of Conservation

Eryri/ Snowdonia

● Designated Special Area of Conservation (SAC)

Country	Wales
Unitary Authority	West Wales and The Valleys
Centroid*	SH695658
Latitude	53.17333333
Longitude	-3.953333333
SAC EU Code	UK0012946
Status	Designated Special Area of Conservation (SAC)
Area (ha)	19732.98

* This is the approximate central point of the SAC. In the case of large, linear or composite sites, this may not represent the location where a feature occurs within the SAC.



Location of Eryri/ Snowdonia
SAC

General site character

- Inland water bodies (Standing water, Running water) (2%)
- Bogs, Marshes, Water fringed vegetation, Fens (15%)
- Heath, Scrub, Maquis and Garrigue, Phygrana (19.7%)
- Dry grassland, Steppes (34%)
- Alpine and sub-Alpine grassland (1%)
- Broad-leaved deciduous woodland (0.3%)
- Inland rocks, Scree, Sands, Permanent Snow and ice (27%)
- Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites) (1%)



Download the Natura 2000 standard data form for this site as submitted to Europe (PDF <100kb)

Note When undertaking an appropriate assessment of impacts at a site, all features of European importance (both primary and non-primary) need to be considered.

Annex I habitats that are a primary reason for selection of this site

- **3130 Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea***

Llyn Idwal, in the mountains of Snowdonia, represents oligotrophic waters (Type 3) in north Wales. It is a relatively small, shallow, upland corrie, in contrast to Llyn Cwellyn, also in Snowdonia, and complete ice cover has been recorded in winter. No overall change in the lake's water chemistry has been found since the mid-19th century, and the water quality is considered to be high. The site has a good representation of typical plant species, including quillwort *Isoetes lacustris*, water lobelia *Lobelia dortmanna*, shoreweed *Littorella uniflora*, bulbous rush *Juncus bulbosus*, alternate water-milfoil *Myriophyllum alterniflorum* and intermediate water-starwort *Callitriche hamulata*. Bog pondweed *Potamogeton polygonifolius* has been recorded from stream inlets, and pillwort *Pilularia globulifera* is reported from this site. Emergent and floating vegetation is mainly confined to the shallow sub-basin at the south end of the site, where floating bur-reed *Sparganium angustifolium* forms extensive mats, alongside stands of common reed *Phragmites australis*, water horsetail *Equisetum fluviatile* and bottle sedge *Carex rostrata*.

- **6150 Siliceous alpine and boreal grasslands**

Snowdonia has the best-developed and most extensive areas of **Siliceous alpine and boreal grasslands** in Wales and is the largest example of the habitat type south of Scotland. The principal sub-type present is U10 *Carex bigelowii* – *Racomitrium lanuginosum* moss-heath, but there are also fragments of U7 *Nardus stricta* – *Carex bigelowii* grass-heath. This site is representative of the more impoverished southern variants of the habitat type.

- **6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels**

Snowdonia is the most southerly site selected and contains the most extensive and diverse examples of **hydrophilous tall herb fringe communities** in Wales. Fragmentary stands of the habitat type occur on pumice tuff and other base-enriched igneous rocks at a range of altitudes throughout the site. The vegetation is floristically somewhat impoverished compared with Scottish examples but includes many of the species found further north, such as globe-flower *Trollius europaeus*, wild angelica *Angelica sylvestris* and holly-fern *Polystichum lonchitis*. It is important as a southern outlier for arctic-alpines such as alpine saw-wort *Saussurea alpina* and black alpine-sedge *Carex atrata*. There are also some southern species, which are absent further north, for example Welsh poppy *Meconopsis cambrica*.

- **8110 Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)**
Snowdonia is the largest site in Wales representative of **siliceous scree**. The site has extensive screes of igneous rocks with large stands of U21 *Cryptogramma crispa* – *Deschampsia flexuosa* vegetation; associated species include fir clubmoss *Huperzia selago*. Bryophyte and lichen-dominated screes are also well-represented and include important populations of rare and local montane and oceanic species, such as *Marsupella adusta*, *Marsupella stableri* and *Cornicularia narmonoerica*.
- **8210 Calcareous rocky slopes with chasmophytic vegetation**
Snowdonia is representative of **Calcareous rocky slopes with chasmophytic vegetation** at one of its most southerly outposts in the UK, and contains the most extensive and diverse examples of these communities in Wales. Crevices in base-rich igneous rocks support a characteristic assemblage of plants, with a large number of arctic-alpine species. These include a number of nationally rare species, such as alpine saxifrage *Saxifraga nivalis*, tufted saxifrage *S. cespitosa*, alpine meadow-grass *Poa alpina* and alpine woodsia *Woodsia alpina*. A species of particular interest is the Snowdon lily *Lloydia serotina*, which in the UK occurs only in Snowdonia, in rock cracks and crevices on calcareous and more siliceous substrates, and is here at its northern limit in western Europe.
- **8220 Siliceous rocky slopes with chasmophytic vegetation**
Snowdonia, north Wales, is representative of **Siliceous rocky slopes with chasmophytic vegetation** at the southern edge of the range of the habitat type. Acidic crevice communities occur throughout the site on igneous outcrops and include populations of stiff sedge *Carex bigelowii*, fir clubmoss *Huperzia selago* and forked spleenwort *Asplenium septentrionale*. Atlantic species, including Wilson's filmy-fern *Hymenophyllum wilsonii* and a wide range of bryophytes, are also well-represented.

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site

- **4010 Northern Atlantic wet heaths with Erica tetralix**
- **4030 European dry heaths**
- **4060 Alpine and Boreal heaths**
- **6170 Alpine and subalpine calcareous grasslands**
- **6230 Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) * Priority feature**
- **7130 Blanket bogs (* if active bog) * Priority feature**
- **7150 Depressions on peat substrates of the Rhynchosporion**
- **7220 Petrifying springs with tufa formation (Cratoneurion) * Priority feature**
- **7230 Alkaline fens**
- **7240 Alpine pioneer formations of the Caricion bicoloris-atrofuscae * Priority feature**
- **91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles**

Annex II species that are a primary reason for selection of this site

- **1393 Slender green feather-moss** *Drepanocladus (Hamatocaulis) vernicosus*

This is an upland site in north Wales for **Slender green feather-moss** *Drepanocladus vernicosus*, which has been recorded in flushes up to an altitude of 450 m.

- **1831 Floating water-plantain** *Luronium natans*

Snowdonia in north Wales is an example of a montane lake habitat supporting **floating water-plantain** *Luronium natans*. Records date back to the 18th century, indicating that habitat conditions are particularly favourable for this species.

Annex II species present as a qualifying feature, but not a primary reason for site selection

- Not Applicable

Many designated sites are on private land: the listing of a site in these pages does not imply any right of public access.

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Tel: 01733 562626 Fax: 01733 555948. Contact us: Enquiry form

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*Conservation (Natural Habitats, &c.) Regulations 1994 (SI 1994 No. 2716),
fel y'u diwygiwyd / as amended.*

COFNOD YN Y GOFRESTR O SAFLEOEDD EWROPEAIDD I GYMRU

ENTRY IN THE REGISTER OF EUROPEAN SITES FOR WALES

(Rheoliad / Regulation 11.2)

ENW'R SAFLE:

SITE NAME: Eryri / Snowdonia

MATH O SAFLE:

SITE TYPE: Ardal Cadwraeth Arbennig (ACA)

CÔD Y SAFLE:

SITE CODE: UK0012946

HANES DYNODIAD:

*Dyddiad y trosglwyddwyd i'r Comisiwn
Ewropeaidd (Rheoliad 7.4):
Mawrth 2003*

*Dyddiad y mabwysiadwyd fel safle o
bwysigrwydd cymunedol (Council Directive
92/42/EEC, Erthygl 4.2):
7 Rhagfyr 2004*

*Dyddiad dynodi:
13 Rhagfyr 2004*

*Dynodwyd gan (Rheoliad 8.1):
Cynulliad Cenedlaethol Cymru*

LLEOLIAD:

*Awdurdod unedol:
Conwy, Gwynedd*

*Cyfesurynnau:
Hydred 03 57 12 Gor, Lledred 53 10 24 Gog
Cyfeirnod Grid Cenedlaethol Arolwg Ordnans:
SH695658*

*Gweler hefyd y map(iau) amgaeëdig, nad
ydynt yn ffurfio rhan o'r cofnod hwn.*

DESIGNATION HISTORY:

*Date transmitted to the European
Commission (Regulation 7.4):
March 2003*

*Date adopted as a site of community
importance (Council Directive 92/42/EEC,
Article 4.2):
7 December 2004*

*Date designated:
13 December 2004*

*Designated by (Regulation 8.1):
National Assembly for Wales*

LOCATION:

*Unitary authority:
Conwy, Gwynedd*

*Coordinates:
Longitude 03 57 12 W, Latitude 53 10 24 N
Ordnance Survey National Grid Reference:
SH695658*

*See also the accompanying map(s), which do
not form part of this entry.*

MATHAU O GYNEFIN A/NEU RYWOGAETHAU Y DYNODIR Y SAFLE O'U PLEGID:
HABITAT TYPES AND/OR SPECIES FOR WHICH THE SITE IS DESIGNATED:

		Enw cyffredin	Common name	Term Gwyddonol	Scientific term
1	*	Cymunedau planhigion ucheldir sy'n gysylltiedig â manau le mae dŵr yn tryddiferu	High-altitude plant communities associated with areas of water seepage	Ffurfiannau alpaidd arloesol o <i>Caricion bicoloris-atrofuscae</i>	Alpine pioneer formations of the <i>Caricion bicoloris-atrofuscae</i>
2	*	Gorgors	Blanket Bog	Gorgorsydd	Blanket bogs
3	*	Ffynhonnau dŵr caled yn gwaddodi calch	Hard-water springs depositing lime	Ffynhonnau caregu gyda ffurfiant twffa (<i>Cratoneurion</i>)	Petrifying springs with tufa formation (<i>Cratoneurion</i>)
4	*	Glaswelltir cyfoethog ei rywogaethau gyda chawne ddu ar ucheldiroedd	Species-rich grassland with mat-grass in upland areas	Glaswelltir <i>Nardus</i> cyfoethog ei rywogaethau, ar is-haenau siliceaidd mewn ardaloedd mynyddig (ac ardaloedd is-fynyddig ar gyfandir Ewrop)	Species-rich <i>Nardus</i> grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe)
5		Ffeniau calchog sy'n derbyn dŵr o ffynhonnau	Calcium-rich springwater-fed fens	Ffeniau alcalïaidd	Alkaline fens
6		Rhostiroedd alpaidd ac is-alpaidd	Alpine and subalpine heaths	Rhostiroedd alpaidd a boreaidd	Alpine and Boreal heaths
7		Glaswelltiroedd calchaid alpaidd ac is-alpaidd	Alpine and subalpine calcareous grasslands	Glaswelltiroedd calchaid alpaidd ac is-alpaidd	Alpine and subalpine calcareous grasslands
8		Planhigion mewn agennau mewn creigiau tra-fasig	Plants in crevices in base-rich rocks	Llethrau creigiog calchaid gyda llystyfiant hafn-ffytig	Calcareous rocky slopes with chasmophytic vegetation
9		Pantiau ar swbstradau o fawn	Depressions on peat substrates	Pantiau mewn swbstradau mawn <i>Rhynchosporion</i>	Depressions on peat substrates of the <i>Rhynchosporion</i>
10		<i>Drepanocladus</i>	Slender green feather-moss	<i>Drepanocladus (Hamatocaulis) vernicosus</i>	
11		Rhostiroedd sych	Dry heaths	Rhostiroedd sych Ewropeaidd	European dry heaths
12		Cymunedau o lysiau tal	Tall herb communities	Cymunedau ymylol o lysiau tal hydroffilaidd gwastadeddau a'r ucheldiroedd mynyddig alpaidd.	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels
13		Llyriad nofiadwy	Floating water-plantain	<i>Luronium natans</i>	
14		Rhostir gwlyb gyda grug croesddeiliog	Wet heathland with cross-leaved heath	Rhostiroedd gwlyb Gogledd yr Iwerydd gydag <i>Erica Tetralix</i>	Northern Atlantic wet heaths with <i>Erica tetralix</i>

15		Coetir derw asidaidd gorllewinol	Western acidic oak woodland	Hen goedwigoedd y dderwen ddigoes gydag <i>Ilex</i> a <i>Blechnum</i> yn Ynysoedd Prydain	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles
16		Llynnoedd o ddŵr clir gyda llystyfiant dyfrdrig gyda lefelau o faetholion sy'n amrywio o ychydig i lefel gymedrol	Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels	Dyfroedd llonydd oligotroffig i fesotroffig gyda llystyfiant o'r <i>Littorelletea uniflorae</i> a/neu'r <i>Isoëto-Nanojuncetea</i>	Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i>
17		Glaswelltir asidaidd mynyddig	Montane acid grasslands	Glaswelltir silicaidd alpaidd a boreal	Siliceous alpine and boreal grasslands
18		Planhigion mewn hafnau ar greigau asidaidd	Plants in crevices on acid rocks	Llethrau creigiog silicaidd gyda llystyfiant hafn-ffytig	Siliceous rocky slopes with chasmophytic vegetation
19		Sgri asidaidd	Acidic scree	Sgri silicaidd y mynydd at lefel yr eira (<i>Androsacetalia alpinae</i> a <i>Galeopsietalia ladani</i>)	Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>)

*Mae'n dynodi mathau o gynefin neu rywogaeth y rhoddir blaenoriaeth iddynt (a ddiffinnir yn Erthyglau 1(d) ac 1(h) o Council Directive 92/43/EEC).

*Denotes a priority habitat type or species (defined in Articles 1(d) and 1(h) of Council Directive 92/43/EEC).

GWNAED Y COFNOD HWN:
14 Mehefin 2005

THIS ENTRY MADE:
14 June 2005

GAN:
Trish Fretten, ar ran Gweinidog dros yr Amgylchedd, Cynllunio a Chefn Gwlad, Cynulliad Cenedlaethol Cymru

BY:
Trish Fretten, on behalf of the Minister for Environment, Planning and Countryside, National Assembly for Wales

LLOFNOD:

SIGNATURE:



DYDDIAD(AU) COFNODION
BLAENOROL AR GYFER Y SAFLE HWN:
Dim

DATE(S) OF PREVIOUS ENTRIES FOR THIS SITE:
None

NATURA 2000 – STANDARD DATA FORM

Special Areas of Conservation under the EC Habitats Directive (includes candidate SACs, Sites of Community Importance and designated SACs).

Each Natura 2000 site in the United Kingdom has its own Standard Data Form containing site-specific information. The data form for this site has been generated from the Natura 2000 Database submitted to the European Commission on the following date:

22/12/2015

The information provided here, follows the officially agreed site information format for Natura 2000 sites, as set out in the [Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011 \(2011/484/EU\)](#).

The Standard Data Forms are generated automatically for all of the UK's Natura 2000 sites using the European Environment Agency's Natura 2000 software. The structure and format of these forms is exactly as produced by the EEA's Natura 2000 software (except for the addition of this coversheet and the end notes). The content matches exactly the data submitted to the European Commission.

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

Further technical documentation may be found here
http://bd.eionet.europa.eu/activities/Natura_2000/reference_portal

As part of the December 2015 submission, several sections of the UK's previously published Standard Data Forms have been updated. For details of the approach taken by the UK in this submission please refer to the following document:
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

More general information on Special Areas of Conservation (SACs) in the United Kingdom is available from the [SAC home page on the JNCC website](#). This webpage also provides links to Standard Data Forms for all SACs in the UK.

Date form generated by the Joint Nature Conservation Committee
25 January 2016.

<http://jncc.defra.gov.uk/>



NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE UK0012946
SITENAME Eryri/ Snowdonia

TABLE OF CONTENTS

- [1. SITE IDENTIFICATION](#)
- [2. SITE LOCATION](#)
- [3. ECOLOGICAL INFORMATION](#)
- [4. SITE DESCRIPTION](#)
- [5. SITE PROTECTION STATUS AND RELATION WITH CORINE BIOTOPES](#)
- [6. SITE MANAGEMENT](#)

1. SITE IDENTIFICATION

1.1 Type B	1.2 Site code UK0012946	Back to top
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1.3 Site name

Eryri/ Snowdonia

1.4 First Compilation date 1995-06	1.5 Update date 2015-12
--	-----------------------------------

1.6 Respondent:

Name/Organisation: Joint Nature Conservation Committee
Address: Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY
Email:

Date site proposed as SCI:	1995-06
Date site confirmed as SCI:	2004-12
Date site designated as SAC:	2004-12
National legal reference of SAC designation:	Regulations 11 and 13-15 of the Conservation of Habitats and Species Regulations 2010 (http://www.legislation.gov.uk/uksi/2010/490/contents/made).

2. SITE LOCATION

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		41.44		G	B	A	A	B
7130	X	1341.84		G	C	C	C	C
7140		31.57		G	D			
7150		17.76		G	C	C	B	C
7220	X				C	C	B	C
7230		1.97		M	C	C	B	C
7240	X				C	C	C	C
8110		1187.93		G	A	C	A	B
8210		272.32			A	A	A	B
8220		272.32		G	B	C	A	B
91A0		39.47		G	C	C	B	C

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species			Population in the site							Site assessment				
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A B C D	A B C		
						Min	Max				Pop.	Con.	Iso.	Glo.
P	1393	Drepanocladus (Hamatocaulis) vernicosus			p				P	DD	C	B	C	B
P	1831	Luronium natans			p				P	DD	C	B	C	B
F	1106	Salmo salar			p				P	DD	D			

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see [reference portal](#))

- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

4.1 General site character

[Back to top](#)

Habitat class	% Cover
N09	34.0
N11	1.0
N16	0.3
N23	1.0
N07	15.0
N22	27.0
N06	2.0
N08	19.7
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: acidic,basalt,basic,calc-schists,metamorphic,metalliferous,nutrient-poor,peat,igneous 2 Terrestrial: Geomorphology and landscape: valley,cragg/ledges,slope,escarpment,hilly,montane,upland

4.2 Quality and importance

Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea for which this is considered to be one of the best areas in the United Kingdom. Northern Atlantic wet heaths with Erica tetralix for which the area is considered to support a significant presence. European dry heaths for which the area is considered to support a significant presence. Alpine and Boreal heaths for which the area is considered to support a significant presence. Siliceous alpine and boreal grasslands for which this is considered to be one of the best areas in the United Kingdom. Alpine and subalpine calcareous grasslands for which the area is considered to support a significant presence. which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares. Species-rich Nardus grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe) for which the area is considered to support a significant presence. Depressions on peat substrates of the Rhynchosporion for which the area is considered to support a significant presence. Petrifying springs with tufa formation (Cratoneurion) for which the area is considered to support a significant presence. which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 100 hectares. Alkaline fens for which the area is considered to support a significant presence. Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) for which this is considered to be one of the best areas in the United Kingdom. Calcareous rocky slopes with chasmophytic vegetation for which this is considered to be one of the best areas in the United Kingdom. which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares. Siliceous rocky slopes with chasmophytic vegetation for which this is considered to be one of the best areas in the United Kingdom. Old sessile oak woods with Ilex and Blechnum in the British Isles for which the area is considered to support a significant presence. Alpine pioneer formations of the Caricion bicoloris-atrofuscae for which the area is considered to support a significant presence. which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares. Blanket bogs for which the area is considered to support a significant presence. Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels for which this is considered to be one of the best areas in the United Kingdom. which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares. Luronium natans for which this is considered to be one of the best areas in the United Kingdom. Drepanocladus (Hamatocaulis) vernicosus for which this is considered to be one of the best areas in the United Kingdom.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i o b]
M	J01		B
H	G01		I
M	F03		I
M	A03		I
M	A08		I
H	A04		I
H	J02		I
M	H02		B
L	B01		I
L	C01		I
M	J03		B
H	H04		B
L	I02		B
H	I01		B

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i o b]
M	A04		I
M	D05		I

Rank: H = high, M = medium, L = low

Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,

T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions

i = inside, o = outside, b = both

4.5 Documentation

The Natural Resources Wales weblink below provides access to information on its designated sites. Detailed information about this Natura 2000 site can be accessed via the Management Plan link provided in Section 6.2. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): <https://naturalresources.wales/conservation-biodiversity-and-wildlife/find-protected-areas-of-land-and-seas/designated-sites>
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

5.1 Designation types at national and regional level:

[Back to top](#)

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK04	100.0	UK01	10.6		

6. SITE MANAGEMENT

6.1 Body(ies) responsible for the site management:

[Back to top](#)

Organisation:	Natural Resources Wales
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

<input checked="" type="checkbox"/>	Yes	Name: ERYRI / SNOWDONIA Link: https://www.naturalresources.wales/media/671995/Eryri%20SAC%20plan%20English.pdf
<input type="checkbox"/>	No, but in preparation	
<input type="checkbox"/>	No	

EXPLANATION OF CODES USED IN THE NATURA 2000 STANDARD DATA FORMS

The codes in the table below are also explained in the [official European Union guidelines for the Standard Data Form](#). The relevant page is shown in the table below.

1.1 Site type

CODE	DESCRIPTION	PAGE NO
A	Designated Special Protection Area	53
B	SAC (includes candidates Special Areas of Conservation, Sites of Community Importance and designated SAC)	53
C	SAC area the same as SPA. Note in the UK Natura 2000 submission this is only used for Gibraltar	53

3.1 Habitat representativity

CODE	DESCRIPTION	PAGE NO
A	Excellent	57
B	Good	57
C	Significant	57
D	Non-significant presence	57

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
1110	Sandbanks which are slightly covered by sea water all the time	57
1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	57
1340	Inland salt meadows	57
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	57
2110	Embryonic shifting dunes	57
2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
2130	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	57
2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippophae rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

CODE	DESCRIPTION	PAGE NO
3160	Natural dystrophic lakes and ponds	57
3170	Mediterranean temporary ponds	57
3180	Turloughs	57
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation	57
4010	Northern Atlantic wet heaths with Erica tetralix	57
4020	Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix	57
4030	European dry heaths	57
4040	Dry Atlantic coastal heaths with Erica vagans	57
4060	Alpine and Boreal heaths	57
4080	Sub-Arctic Salix spp. scrub	57
5110	Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)	57
5130	Juniperus communis formations on heaths or calcareous grasslands	57
6130	Calaminarian grasslands of the Violetalia calaminariae	57
6150	Siliceous alpine and boreal grasslands	57
6170	Alpine and subalpine calcareous grasslands	57
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	57
6230	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	57
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	57
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	57
6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	57
6520	Mountain hay meadows	57
7110	Active raised bogs	57
7120	Degraded raised bogs still capable of natural regeneration	57
7130	Blanket bogs (* if active bog)	57
7140	Transition mires and quaking bogs	57
7150	Depressions on peat substrates of the Rhynchosporion	57
7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	57
7220	Petrifying springs with tufa formation (Cratoneurion)	57
7230	Alkaline fens	57
7240	Alpine pioneer formations of the Caricion bicoloris-atrofuscae	57
8110	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)	57
8120	Calcareous and calcshist screes of the montane to alpine levels (Thlaspietea rotundifolii)	57
8210	Calcareous rocky slopes with chasmophytic vegetation	57
8220	Siliceous rocky slopes with chasmophytic vegetation	57
8240	Limestone pavements	57
8310	Caves not open to the public	57
8330	Submerged or partially submerged sea caves	57
9120	Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)	57
9130	Asperulo-Fagetum beech forests	57
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	57
9180	Tilio-Acerion forests of slopes, screes and ravines	57
9190	Old acidophilous oak woods with Quercus robur on sandy plains	57
91A0	Old sessile oak woods with Ilex and Blechnum in the British Isles	57
91C0	Caledonian forest	57
91D0	Bog woodland	57
91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	57
91J0	Taxus baccata woods of the British Isles	57

3.1 Relative surface

CODE	DESCRIPTION	PAGE NO
A	15%-100%	58
B	2%-15%	58
C	< 2%	58

3.1 Conservation status habitat

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	59
B	Good conservation	59
C	Average or reduced conservation	59

3.1 Global grade habitat

CODE	DESCRIPTION	PAGE NO
A	Excellent value	59
B	Good value	59
C	Significant value	59

3.2 Population (abbreviated to 'Pop.' in data form)

CODE	DESCRIPTION	PAGE NO
A	15%-100%	62
B	2%-15%	62
C	< 2%	62
D	Non-significant population	62

3.2 Conservation status species (abbreviated to 'Con.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	63
B	Good conservation	63
C	Average or reduced conservation	63

3.2 Isolation (abbreviated to 'Iso.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Population (almost) Isolated	63
B	Population not-isolated, but on margins of area of distribution	63
C	Population not-isolated within extended distribution range	63

3.2 Global Grade (abbreviated to 'Glo.' Or 'G.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	63
B	Good value	63
C	Significant value	63

3.3 Assemblages types

CODE	DESCRIPTION	PAGE NO
WATR	Non breeding waterfowl assemblage	UK specific code
SBA	Breeding seabird assemblage	UK specific code
BBA	Breeding bird assemblage (applies only to sites classified pre 2000)	UK specific code

4.1 Habitat class code

CODE	DESCRIPTION	PAGE NO
N01	Marine areas, Sea inlets	65
N02	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	65
N03	Salt marshes, Salt pastures, Salt steppes	65
N04	Coastal sand dunes, Sand beaches, Machair	65
N05	Shingle, Sea cliffs, Islets	65
N06	Inland water bodies (Standing water, Running water)	65
N07	Bogs, Marshes, Water fringed vegetation, Fens	65
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	65
N09	Dry grassland, Steppes	65
N10	Humid grassland, Mesophile grassland	65
N11	Alpine and sub-Alpine grassland	65
N14	Improved grassland	65
N15	Other arable land	65
N16	Broad-leaved deciduous woodland	65
N17	Coniferous woodland	65
N19	Mixed woodland	65
N21	Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas)	65
N22	Inland rocks, Scree, Sands, Permanent Snow and ice	65
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	65
N25	Grassland and scrub habitats (general)	65
N26	Woodland habitats (general)	65

4.3 Threats code

CODE	DESCRIPTION	PAGE NO
A01	Cultivation	65
A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
A04	Grazing	65
A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
A08	Fertilisation	65
A10	Restructuring agricultural land holding	65
A11	Agriculture activities not referred to above	65
B01	Forest planting on open ground	65
B02	Forest and Plantation management & use	65
B03	Forest exploitation without replanting or natural regrowth	65
B04	Use of biocides, hormones and chemicals (forestry)	65
B06	Grazing in forests/ woodland	65
B07	Forestry activities not referred to above	65
C01	Mining and quarrying	65
C02	Exploration and extraction of oil or gas	65
C03	Renewable abiotic energy use	65
D01	Roads, paths and railroads	65
D02	Utility and service lines	65
D03	Shipping lanes, ports, marine constructions	65
D04	Airports, flightpaths	65
D05	Improved access to site	65
E01	Urbanised areas, human habitation	65
E02	Industrial or commercial areas	65

CODE	DESCRIPTION	PAGE NO
E03	Discharges	65
E04	Structures, buildings in the landscape	65
E06	Other urbanisation, industrial and similar activities	65
F01	Marine and Freshwater Aquaculture	65
F02	Fishing and harvesting aquatic resources	65
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	65
F04	Taking / Removal of terrestrial plants, general	65
F05	Illegal taking/ removal of marine fauna	65
F06	Hunting, fishing or collecting activities not referred to above	65
G01	Outdoor sports and leisure activities, recreational activities	65
G02	Sport and leisure structures	65
G03	Interpretative centres	65
G04	Military use and civil unrest	65
G05	Other human intrusions and disturbances	65
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)	65
H02	Pollution to groundwater (point sources and diffuse sources)	65
H03	Marine water pollution	65
H04	Air pollution, air-borne pollutants	65
H05	Soil pollution and solid waste (excluding discharges)	65
H06	Excess energy	65
H07	Other forms of pollution	65
I01	Invasive non-native species	65
I02	Problematic native species	65
I03	Introduced genetic material, GMO	65
J01	Fire and fire suppression	65
J02	Human induced changes in hydraulic conditions	65
J03	Other ecosystem modifications	65
K01	Abiotic (slow) natural processes	65
K02	Biocenotic evolution, succession	65
K03	Interspecific faunal relations	65
K04	Interspecific floral relations	65
K05	Reduced fecundity/ genetic depression	65
L05	Collapse of terrain, landslide	65
L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
M02	Changes in biotic conditions	65
U	Unknown threat or pressure	65
XO	Threats and pressures from outside the Member State	65

5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
UK00	No Protection Status	67
UK01	National Nature Reserve	67
UK02	Marine Nature Reserve	67
UK04	Site of Special Scientific Interest (UK)	67

APPENDIX 02

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

**CORE MANAGEMENT PLAN
INCLUDING CONSERVATION OBJECTIVES**

**FOR
ERYRI SAC**

**(Also includes: Eryri SSSI, Cwm Idwal Ramsar Site, Cwm Idwal NNR,
Cwm Glas Crafnant NNR and Yr Wyddfa NNR)**

Version: 1.0 Helen Hughes

Date: 20 March 2008

Approved by: Mike Willis

**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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* Priority feature**

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6. Action Plan: Summary

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PREFACE

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

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

1. VISION FOR THE SITE

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

CCW's long term vision for the Eryri SSSI and SAC is to manage the special habitats so that they are restored to a more natural state, particularly the montane habitats, some of which are not found elsewhere in Wales or England. Appropriate management will enable some of the special features of the SAC/SSSI to expand and for most habitats to improve in quality to become more robust and resilient to climate change and other pressures.

The montane habitats are the main reason for the SAC and SSSI designation and they will be the main focus of management. Many of these have been heavily degraded over time and some arctic alpine plant communities are now restricted to small areas on crags and ledges which cannot be accessed by grazing animals. The summit heath, montane heaths, tall herb ledges and rocky crevice vegetation with their rare plants should improve and expand over time as a result of grazing pressure being reduced or removed. These heaths, and also the dry heath at lower altitudes, are expected to achieve higher coverage of dwarf shrubs, mosses and lichens and a reduction in grass cover.

The plant communities on the ungrazed ledges should continue to flower and set seed, while those of the currently grazed ledges are expected to flower and set seed more freely and expand into the calcareous grasslands below the cliffs. The chasmophytic plant communities on cliffs and boulders tend to be restricted solely to where sheep cannot reach them and will extend their range as a result of a reduction in sheep numbers in these locations.

Wetlands such as the blanket bogs, mires, lakes, springs and wet heaths are expected to improve in quality and become more diverse under appropriate management.

As the more important plant communities thrive and expand it is inevitable that others will retract and we accept that the proportions of some habitat types will change, while others are confined to particular physical conditions. Some of the areas currently mapped as scree may decrease as the cover of heath encroaches and some areas of acid grassland are likely to succeed to heath and maybe eventually to scattered trees and woodland. However, there are particular areas of close-cropped acid grassland in Eryri in which chough regularly feed and these will continue to be prioritised for chough management.

Many of the rare plants, upland bird populations and upland invertebrates are expected to expand their populations over time as the habitat improves under appropriate habitat management.

The geological features will remain exposed in order that they can be accessed for geological study. The only management required is to prevent disturbance or physical damage to them and prevent them from being concealed.

This vision will not be achieved without the help of the farming community that has shaped Eryri for millennia. Helping to ensure that farming in Eryri is prosperous will help retain traditional practices, many of which have been beneficial to the wildlife of this unique area.

2. SITE DESCRIPTION

2.1 Area and Designations Covered by this Plan

Grid reference:	SH668606
Unitary authorities:	Cyngor Gwynedd Council Cyngor Bwrdeistref Sirol Conwy/ Conwy County Borough Council
Area (hectares):	19768.22 Ha

Designations covered:

Eryri SSSI – This is the total area covered by this plan and includes areas of geological interest only which fall outside the SAC boundary

Eryri SAC

Cwm Idwal NNR

Cwm Idwal Ramsar Site

Cwm Glas Crafnant NNR

Yr Wyddfa NNR

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

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

For a summary map showing the coverage of this document see Unit Maps.

2.2 Outline Description

Eryri comprises three upland massifs separated by roads, the Carneddau, Glyderau and Yr Wyddfa. All three host a number of biological and geological SSSI features and SAC features. The three massifs are divided into land parcels or compartments, most of which are in private ownership, but some are common land and some are owned by organisations such as the National Trust and power companies.

2.3 Outline of Past and Current Management

Much of Eryri would once have been covered by woodland other than the high ridges and summits. Extensive woodland clearance for agriculture and also quarrying and mining has meant that woodland is now confined to small areas on some of the lower slopes and pockets left in valleys. The resulting vegetation as a result of woodland clearance and the effects of grazing animals is mostly grasslands and heaths with mires and blanket bogs on the deeper peats and on poorly draining ground. A long history of grazing has meant that the rare arctic alpine plants are restricted to the cliffs, ledges and large boulders that are mostly inaccessible to grazing animals.

Eryri was once grazed by sheep, cattle, ponies and goats. Remaining goats are now confined to feral flocks in areas of Yr Wyddfa and the Glyderau. Cattle are now only rarely used and mountain ponies are confined to the Carneddau. Cattle and ponies are considered beneficial at appropriate stocking levels because they grazed the coarser vegetation which sheep avoid and produce a more varied vegetation structure. Goats in high numbers pose a threat to the more restricted montane vegetation including the rare arctic alpines since they can access ledges and cliffs which the sheep cannot reach.

Sheep have been the main grazing animals for many years, though cattle were grazed also on many holdings, and stocking rates continued to rise over centuries resulting in the demise of many habitats, including the wet and dry heath and blanket bogs. The result is the rather uniform grassy swards we see today. Damage is particularly evident in the montane heaths that are slow to recover because of their slow growth rates in the extreme conditions they occupy, and in many instances this decline has been exacerbated by recreational pressures and atmospheric pollution. Only recently have the stock numbers begun to decline as a result of management agreements with owners and agri-environment schemes, notably Tir Gofal. Sheep are still the main grazing animal but small numbers of cattle are also kept on some of the holdings and are beneficial to many of the habitats where they graze the coarse vegetation which sheep do not touch. Similarly, the feral mountain ponies which roam the Carneddau graze the coarse vegetation and their dung is beneficial to invertebrates and subsequently to chough.

Burning of heaths and bogs was also widely practised. Today it is only undertaken on heathland under management agreements or with CCW consent and no burning of wet heaths or bog would be consented since this would damage the habitat. Burning or cutting of heath can become necessary where grazing is not sufficient to maintain a varied structure.

2.4 Management Units

The plan area has been divided into management units to enable practical communication about features, objectives, and management. This will also allow us to differentiate between the different designations where necessary. In this plan the management units have been based on named compartments that usually relate to ownership parcels or sometimes on tenure. The reason for this is that the site is managed at that level and although each unit may contain a number of features, there are unlikely to be any physical barriers to stock within a unit nor usually between units. Therefore careful thought is needed to prioritise the most sensitive features both within a unit and often beyond the boundaries of units.

See maps showing the management units referred to in this plan.

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

Compartment name	Unit number	SAC	SSSI	CCW owned	Other (e.g. NNR, Ramsar)
Aber and Llanfairfechan Commons (A)	1.	✓	✓		
Aber and Llanfairfechan Common (B)	2.	✓	✓		
Llanllechid Common	3.	✓	✓		
Blaenddol (B)	4.	✓	✓		
Blaenddol (C)	5.	✓	✓		
Blaenddol (A)	6.	✓	✓		
Hafod y Garreg	7.	✓	✓		
Rowlyn Uchaf	8.	✓	✓		
Caerhun	9.	✓	✓		
Rowlyn Isaf	10.	✓	✓		
Pant Meurig	11.	✓	✓		
Tanrallt (A)	12.	✓	✓		
Tanrallt (B)	13.	✓	✓		
Llwydfaen (A)	14.	✓	✓		
Llwydfaen (B)	15.	✓	✓		
Cae Rhedvn	16.	✓	✓		
Carreg y Ffordd	17.	✓	✓		

Cae Fadog	18.	✓	✓		
Farchwel (A)	19.	✓	✓		
Farchwel (B)	20.	✓	✓		
Cefn Cyfarwydd	21.	✓	✓		
Pen y Bryn	22.	✓	✓		
Cae Crwn	23.	✓	✓		
Bryn Dansi	24.	✓	✓		
Clogwyn yr Eryr	25.	✓	✓		
Cwm Crafnant NNR upper	26.	✓	✓		✓NNR
Cwm Crafnant NNR lower	27.	✓	✓		✓NNR
Maes Mawr (A)	28.	✓	✓		
Maes Mawr (B)	29.	✓	✓		
Cae Crwn Valley Floor	30.	✓	✓		
Cornel	31.	✓	✓		
Hendre	32.	✓	✓		
Forestry Commission Crafnant	33.	✓	✓		
Crafnant Shore East of Cornel	34.	✓	✓		
Dol Llech	35.	✓	✓		
Cwmlanerch	36.	✓	✓		
Tal y Braich Isaf	37.	✓	✓		
Bryn Ddraenan (Bodesi)	38.	✓	✓		
Tyn y Maes	39.	✓	✓		
Braich Ty Du	40.	✓	✓		
Dolawen Valley Floor (A)	41.	✓	✓		
Dolawen Valley Floor (B)	42.	✓	✓		
Tyn y Maes Valley Floor	43.	✓	✓		
Ogwen Woodland	44.	✓	✓		
Maes Caradog Valley Floor	45.	✓	✓		
Pentre Valley Floor	46.	✓	✓		
Braich Ty Du Valley Floor	47.	✓	✓		
Cefn Coed Isa (Ogwen Valley Floor)	48.	✓	✓		
Blaen y Nant Valley Floor	49.	✓	✓		
Dolawen	50.	✓	✓		
Maes Caradog	51.	✓	✓		
Pentre	52.	✓	✓		
Cwm Idwal	53.	✓	✓		✓NNR
Blaen y Nant	54.	✓	✓		
Gwern Gof Uchaf	55.	✓	✓		
Gwern Gof Isaf	56.	✓	✓		
Royal (ex Garth)	57.	✓	✓		
Dvffryn Mvmbvr	58.	✓	✓		
Gwastadanas (Glyderau)	59.	✓	✓		
Cae Perthi	60.	✓	✓		
Gwastadnant	61.	✓	✓		
Hafod Gynfor (Glyderau)	62.	✓	✓		
Hafod Lydan	63.	✓	✓		
Fields of West Cae Perthi	64.	✓	✓		
Maes Caradog (B) Marchlyn	65.	✓	✓		
Elidir Fach	66.	✓	✓		
Elidir Fawr	67.	✓	✓		
Dinorwig West	68.	✓	✓		
Dinorwig East	69.	✓	✓		
Gwaen Gynfi	70.	✓	✓		

Moel y Ci	71.	✓	✓		
Drysgol Fawr	72.	✓	✓		
Moel Rhiwen	73.	✓	✓		
Pen y Bwlch Ffridd	74.	✓	✓		
Nant Peris	75.	✓	✓		
Hafod Gynfor (Wyddfa)	76.	✓	✓		
Cwm Glas Mawr a Fach	77.	✓	✓		
Cwm Beudy Mawr	78.	✓	✓		
Hafodty	79.	✓	✓		
Snowdon Railway	80.	✓	✓		
Moel Cynghorion	81.	✓	✓		
Bron Fedw Isaf	82.	✓	✓		
Bron Fedw Uchaf	83.	✓	✓		
Clogwyn y Gwin	84.	✓	✓		
Ffridd Uchaf	85.	✓	✓		
Bryncroes	86.	✓	✓		
Gwastadanas Wyddfa	87.	✓	✓		✓NNR
Hafod y Llan (mountain)	88.	✓	✓		✓NNR
Hafod y Llan (woodland)	89.	✓	✓		✓NNR
Hafod Rhisgl	90.	✓	✓		✓NNR
Hafod y Porth	91.	✓	✓		
Llyn Llydaw	92.	✓	✓		✓NNR
Llyn Glaslyn	93.	✓	✓		✓NNR
Llyn Nadroedd	94.	✓	✓		
Llyn Coch	95.	✓	✓		
Llyn Tevrn	96.	✓	✓		✓NNR
Llyn Glas	97.	✓	✓		
Llyn Cwm Glas	98.	✓	✓		
Llyn Cwm Glas Bach	99.	✓	✓		
Llyn Ffynnon y Gwas	100.	✓	✓		
Llyn Du'r Arddu	101.	✓	✓		
Llyn Cwmffynnon	102.	✓	✓		
Llyn Fynnon Llugwy	103.	✓	✓		
Llyn Clyd	104.	✓	✓		✓NNR
Llyn y Cwn	105.	✓	✓		✓NNR
Llyn Bochlwyd	106.	✓	✓		
Llyn Idwal	107.	✓	✓		✓Ramsar ✓NNR
Llyn Marchlyn Mawr	108.	✓	✓		
Llyn Machlyn Bach	109.	✓	✓		
Llyn Ffynnon Lloer	110.	✓	✓		
Llyn Coedty	111.	✓	✓		
Llyn Ogwen	112.	✓	✓		
Llyn Eigiau	113.	✓	✓		
Llyn Cowlyd	114.	✓	✓		
Llyn Anafon	115.	✓	✓		
Llyn Melynlllyn	116.	✓	✓		
Llyn Dulyn	117.	✓	✓		
Dyffryn Mymbyr Geological	118.		✓		
Plas y Brenin Geological	119.		✓		
Garth Geological	120.		✓		
Cwmlanerch Geological	121.		✓		
Hafod Rhisgl Geological	122.		✓		

Hafod Lwyfog Geological	123.		✓		
Gwastadanas Geological	124.		✓		
Royal Geological	125.		✓		
Ogwen Valley (Dolawen) Geological	126.		✓		
Gwynant Geological	127.		✓		

3. THE SPECIAL FEATURES

3.1 Confirmation of the Special Features

<i>Designated feature</i>	<i>Relationships, nomenclature etc</i>	<i>Conservation Objective in part 4</i>	<i>Comments</i>
SAC features			
6150 Siliceous alpine and boreal grasslands	Generally referred to as ‘summit heath’ throughout this document. SSSI feature = Lichen, bryophyte and montane heath. Short wind-pruned shrubs with <i>Carex bigelowii</i> , lichens and bryophytes.	1	Mostly degraded by heavy grazing, trampling and probably atmospheric pollution. Priority for management wherever it occurs.
4060 Alpine and Boreal heaths	Montane heaths. SSSI feature.	2	At high elevations and are distinguished from the dry heaths below by distinctive bryophytes and lichens. The most distinctive stands have juniper.
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	Generally referred to as ‘tall herb ledges’ throughout this document. Flowering plants on ledges and cliffs often contain arctic alpines. SSSI feature = <u>Upland species-rich ledges and Tall-herb and fern</u>	3	Restricted to base-rich wet cliffs and crags. Susceptible to grazing so better stands are where ledges are inaccessible to sheep and goats. Usually a priority for management wherever it occurs.

<p>8210 Calcareous rocky slopes with chasmophytic vegetation</p>	<p>Generally referred to as ‘arctic alpine plants on cliffs and boulders’ throughout this document. SSSI features would be rare plants qualifying individually or as assemblages.</p>	<p>4</p>	<p>Highly palatable to sheep and goats, therefore mostly restricted to inaccessible base-rich cliffs, boulders and crags. Usually a priority for management wherever it occurs.</p>
<p>6170 Alpine and subalpine calcareous grasslands</p>	<p>These are base-rich ‘grasslands’ (CG12 and CG14) that occur on rocky habitats and there is not always a clear separation from the ledge and chasmophytic communities.</p>	<p>5</p>	<p>Usually a priority for management wherever it occurs.</p>
<p>8220 Siliceous rocky slopes with chasmophytic vegetation</p>	<p>These are acid rock fissures supporting mostly ferns, clubmosses and bryophytes. SSSI feature = Inland cliffs and rock exposures and crevice vegetation. Some of the plants qualify as SSSI features individually or as part of assemblages.</p>	<p>6</p>	<p>Widespread on Eryri and cannot be quantified with any accuracy.</p>
<p>8110 Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>)</p>	<p>Generally referred to as ‘montane scree’ throughout this document and is a SSSI feature.</p>	<p>7</p>	<p>Note that not all of the scree on Eryri is part of this SAC feature which refers to the higher altitude naturally mobile screes.</p>
<p>3130 Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i></p>	<p>Generally referred to as ‘lakes’ throughout this document but only those with the characteristic aquatic flora qualify. Also SSSI feature.</p>	<p>8</p>	<p>Some lakes on Eryri are reservoirs and some of these lack the plant interest so do not qualify.</p>

4010 Northern Atlantic wet heaths with <i>Erica tetralix</i>	SSSI feature = wet heath	9	Good expanses around Llyn Cwmffynnon mixed with Rhynchosporion EU7150. Many scattered stands on all three massifs.
4030 European dry heaths	Typically stands with heather, <i>Calluna vulgaris</i> , bilberry, <i>Vaccinium myrtillus</i> and sometimes western gorse <i>Ulex gallii</i> . Bell heather <i>Erica cinerea</i> can occur on well drained slopes and Crowberry <i>Empetrum nigrum</i> on north facing damp slopes.	10	Widespread and increasing with relaxed grazing pressure, usually at the expense of acid grassland. May expand into less mobile screes
7130 Blanket bogs * Priority feature	Widespread and variable. SSSI feature of same name.	11	
7150 Depressions on peat substrates of the Rhynchosporion	Localised habitat. May support marsh clubmoss and/or bog orchid SSSI feature = wet heath or flush and spring.	12	Occurs in mosaics with wet heath and blanket bog.
6230 Species-rich <i>Nardus</i> grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe) * Priority feature	Most significant habitat is on Yr Wyddfa, with scattered smaller areas on the Glyderau and Carneddau.	13	
91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles	Atlantic oakwoods. SSSI feature = Broadleaved woodland, but that covers other woodland types also.	14	Potential for expansion. Grazing exclusion needed for restoration.
7220 Petrifying springs with tufa formation (<i>Cratoneurion</i>) * Priority feature	The Eryri examples compare well to this SAC feature in floristic terms, though none exhibit the 'petrifying' qualities of examples on limestone.	15	Management cannot be specifically targeted at this habitat

7230 Alkaline fens	This is represented by small sedge flushes, base-rich bryophytes and usually <i>Pinguicula vulgaris</i> . This habitat is usually small and patchy.	16	Management cannot be specifically targeted at this habitat though efforts can be made to avoid trampling impacts.
7240 Alpine pioneer formations of the <i>Caricion bicoloris-atrofuscae</i> * Priority feature	High altitude base-rich flushes with <i>Juncus triglumis</i> . Rare on Eryri. Associated with snow patches.	17	Management cannot be specifically targeted at this habitat
1831 Floating water-plantain <i>Luronium natans</i>	Llyn Cwmffynnon is the only lake on Eryri where floating water-plantain <i>Luronium natans</i> has been recently recorded. It was however not re-found in 2006. Additional records from Llyn Idwal date back to the early 20 th century, but the plant has not been found recently.	18	The habitat conditions appear to be favourable for this species - we assume that it still occurs there but is difficult to find.
1393 Slender green feather-moss <i>Drepanocladus (Hamatocaulis) vernicosus</i>	Occurs in base-rich flushes on Llanllechid Common.	19	.
SSSI features			
Lichen, bryophyte and montane heath	This includes the SAC features Siliceous and boreal grasslands and Alpine and boreal heaths, and any gradations in between the two.		
Dry dwarf shrub heath	Dry heaths that do not fall into the above category. Relates to SAC feature European dry heaths		
Wet heath	Relates to SAC feature 4010 Northern Atlantic wet heaths with <i>Erica tetralix</i>		
Blanket bog	Relates to SAC feature 7130 blanket bogs		

Flush and spring (soligenous mire)	Most is not a SAC feature except for NVC M10 which relates to the Alkaline Fens feature		
Calcareous grassland	This usually relates to 6230 Species-rich <i>Nardus</i> grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe.) Normally represented by CG10 in flushed areas near bases of cliffs and streamsides..		
Upland species-rich ledges	Relates to SAC feature 6430 Hydrophilous tall herb fringe communities of plains and the montane to alpine levels		
Tall-herb and fern	Relates to SAC feature 6430 Hydrophilous tall herb fringe communities of plains and the montane to alpine levels		
Vegetated scree and boulders	Truly montane (naturally mobile) scree is the SAC feature 8110. Boulder vegetation may relate to SAC features 8210 or 8220.		
Inland cliffs and rock exposures and crevice vegetation	May relate to SAC feature 8210. Also rare plants may qualify as SSSI features individually or as assemblages.		
Broadleaved woodland	This includes the SAC feature 91A0 oakwoods, but also other types of non-SAC woodland including ash woodland		Good ash woods in the Crafnant valley
Oligotrophic standing water	Some of the lakes qualify as SAC feature 3130, but not all.		
Snowdon lily – <i>Lloydia serotina</i>	Individually qualifying flowering plant		
Floating water-plantain <i>Luronium natans</i>	Individually qualifying flowering plant		

Tufted saxifrage <i>Saxifraga cespitosa</i>	Individually qualifying flowering plant		
Killarney fern <i>Trichomanes speciosum</i>	Individually qualifying pteridophyte		
Oblong woodsia <i>Woodsia ilvensis</i>	Individually qualifying pteridophyte		
Alpine woodsia <i>Woodsia alpina</i>	Individually qualifying pteridophyte		
Rock and cliff ledge and crevice plant assemblage	See features sheet for list		
Montane grassland plant assemblage	See features sheet for list		
Aquatic and marginal plant assemblage	See features sheet for list		
Slender green feather moss <i>Haematocaulis vernicosus</i>	Individually qualifying bryophyte		
<i>Seligeria brevifolia</i>	Individually qualifying bryophyte		
Bryophyte assemblage	See features sheet for list		
Charophytes	<i>Nitella gracilis</i> Slender stonewort		
Lichens	<i>Lecanora achariana</i> tarn lecanora		
Lichen assemblage	See features sheet for list		
Birds individually qualifying	Chough		
Upland moorland and grassland breeding bird assemblage	See features sheet for list		
Individually qualifying invertebrate	<i>Chrysolina cerealis</i> rainbow leaf beetle		
Montane invertebrate assemblage	See features sheet for list		
Salmon			
Cambrian rocks exposed in Cwm Graianog	GCR		
Ordovician volcanic rocks exposed around Snowdon, Cwm Idwal, Braich Tŷ Du, Capel Curig and Llyn Dulyrn	GCR		
Deformed rocks exposed in Cwm Idwal and Dyffryn Mymbyr	GCR		
Mine dumps and mineralised rocks at Llanberis Mine, Lliwedd Mine, and Cwm Tregalan and Shadow Gully	GCR		
Glacial and cold-climate landforms and deposits found within Yr Wyddfa, Y Glydeiriau and Y Carneddau massifs	GCR		

3.1 Special Features and Management Units

This section sets out the relationship between the special features and each management unit. This is intended to provide a clear statement about what each unit should be managed for, taking into account the varied needs of the different special features. All special features are allocated to one of seven classes in each management unit. These classes are:

Key Features

KH – a ‘Key Habitat’ in the management unit, i.e. the habitat that is the main focus of management and monitoring effort, perhaps because of the dependence of a key species (see KS below). There will rarely be more than one Key Habitat in a unit.

KS – a ‘Key Species’ in the management unit, often driving both the selection and management of a Key Habitat.

Geo – an earth science feature that is the main focus of management and monitoring effort in a unit.

Other Features

Sym - habitats, species and earth science features that are of importance in a unit but are not the main focus of management or monitoring. These features will benefit from management for the key feature(s) identified in the unit. These may be classed as ‘Sym’ features because:

- a) they are present in the unit but are of less conservation importance than the key feature; and/or
- b) they are present in the unit but in small areas/numbers, with the bulk of the feature in other units of the site; and/or
- c) their requirements are broader than and compatible with the management needs of the key feature(s).

Nm - an infrequently used category where features are at risk of decline within a unit as a result of meeting the management needs of the key feature(s), i.e. under Negative Management. These cases will usually be compensated for by management elsewhere in the plan, and can be used where minor occurrences of a feature would otherwise lead to apparent conflict with another key feature in a unit.

Mn – Management units with no special feature present but which are of importance for management of features elsewhere on a site e.g. livestock over-wintering area included within designation boundaries.

X – Features not present in the management unit.

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

Management units in this plan are mostly based on existing traditional compartments. A unit may have several features but is managed as one and there is normally no possibility of physically separating those features for management purposes. Only in the following instances have any compartments been split:

1. The lakes (excluding very small ones or peaty tarns have been separated from the compartments in which they occur. This is because many are managed by organisations or other bodies rather than the owner or tenant of the compartment and are influenced by different factors from those affecting terrestrial habitats.
2. An area of Aber and Llanfairfechan Commons has been separated as a unit because it is being managed specifically for chough. Although there is no physical boundary between this area and the rest of the common, current management practice and existing habitat structure concentrates grazing stock in this area.

Note that in the interests of trying to reduce the size of this plan, some of the SSSI features are not normally included in the compartment tables because of the following assumptions:

Bracken, marshy grassland, swamp, running water, flushes and springs and neutral grassland because they are not usually prioritised for management and present on many holdings. Management for other features are expected to be sympathetic to these features. However they may be cited where there are no other more important features present, or where they are particularly extensive and form an important element of management for that compartment.

Acid grassland is present on probably every compartment and is only listed here where it is particularly important, for feeding chough for example, or for those compartments which have no other features. Similarly, scrub is not usually listed in the tables unless there is planned woodland development.

Rare higher plants and their assemblages are covered by the SAC features in which they occur, the only possible exception being *Euphrasia cambrica*.

Lower plants and their assemblages, bird assemblages, and montane invertebrate assemblages are likely to be present on many holdings but only important known locations are included in the tables. Management may be tailored to accommodate these features in the known important locations, but elsewhere it is assumed that the prescribed management will be suitable for their needs.

Where a SSSI feature is also a SAC feature it is not listed twice.

The SSSI features that are not SAC features include acid grassland, marshy grassland, most types of mire, some of the water bodies and the less montane screes.

The tables do not include absence of a feature because with such a large upland site, some parts of which are not accessible, we do not have a complete inventory of all of the features on every compartment.

In an attempt to try and make the information in the tables more easy to assimilate, the SAC features have been grouped and colour coded as follows:

<i>Designated feature</i>	<i>Relationships,</i>	<i>Comments</i>
6150 Siliceous and boreal grasslands (Summit heath)	<i>These features are of very high conservation value, occur in close proximity to each other. 6430, 8210 and 6170 can be difficult to separate out as distinct features.</i> They require no grazing. They are very sensitive to damage from grazing stock and in some areas, particularly on ridges, from recreational pressures e.g. trampling by walkers. The more calcareous communities are highly palatable to stock and where accessible to sheep and goats are very susceptible to damage. The high altitude at which these habitats occur makes recovery very slow.	Grazing management can address all of these features together i.e. management for one of these in a compartment would normally benefit all.
4060 Alpine and boreal heaths (montane heaths)		
6430 Hydrophilous tall herb (tall herb ledges)		
8210 Calcareous rocky slopes with chasmophytic vegetation (calcareous crevice vegetation/arctic alpine plants on cliffs and boulders)		
6170 Alpine and subalpine calcareous grasslands (CG12/14)		

8220 acid crevice vegetation	These high altitude habitats are contiguous with the above but a little less sensitive to grazing. Being on acid substrates they may be less palatable and are less likely to support rare species	Very light grazing tolerated though probably not necessary for habitat maintenance
8110 montane scree		
3130 oligotrophic lakes	Although water quality can be affected by the catchment management, appropriate management of the other features should address this aspect.	Any other factors are separate from land management issues and the lakes feature is addressed separately from the compartments
4010 wet heath	These habitats often occur in close proximity to each other or in small-scale mosaics. They are different in their management requirements because dry heath normally needs more grazing than the other habitats. This does not always cause a conflict because stock may preferentially graze the drier heath rather than the wetter communities.	Large areas of over-mature dry heath have developed in places and sheep now avoid grazing those areas. In these situations, grazing levels have to be chosen to benefit the wetter communities and additional management is needed for the dry heath.
4030 dry heath		
7130 blanket bog		
7150 rhynchosporion		
6230 species rich <i>Nardus</i> grassland	This feature requires light grazing for its maintenance. It is likely that stock will graze it preferentially since it is well-drained and probably more mineral-rich than most habitats in proximity	
91A0 upland oakwood	At present this needs total stock exclusion to expand and regenerate	Feral goats are a problem and are very difficult to exclude
7220 Petrifying springs	Management cannot be specifically targeted at these habitats because they occur only in very small patches. Their condition will be a consequence of management for other habitats but is not expected to deteriorate with grazing reduction since they naturally of low productivity and tend to be maintained by vigorous flushing	
7230 alkaline fens		
7240 Alpine pioneer vegetation		
1831 Floating water-plantain <i>Luronium natans</i>	Llyn Cwmffynnon is the only lake on Eryri where floating water-plantain <i>Luronium natans</i> has been recently recorded. Additional records from Llyn Idwal date back to the early 20 th century, but the plant has not been found recently.	The habitat conditions appear to be favourable for this species - we assume that it still occurs there but is difficult to find.
1393 Slender green feather-moss <i>Drepanocladus (Hamatocaulis) vernicosus</i>	There are probably no management concerns – the habitat is grazed and likely to be maintained by flushing. There are no tree seed sources nearby so no perceived threat	Occurs in base-rich flushes on Llanllechid Common.

3.1.1 Carneddau: Cowlyd and Crafnant area

These holdings have been grouped in this table since they share similarities and host a mosaic of dry heath and blanket bog. This area has a different character to the western Carneddau and the rest of Eryri generally being more rolling, heathy and much is probably less heavily modified.

Management unit									
UPLAND SLOPES									
	19	20	21	22	23	24	25	26	33
SAC	✓	✓	✓	✓	✓	✓	✓	✓	✓
SSSI	✓	✓	✓	✓	✓	✓	✓	✓	✓
NNR/CCW owned								NNR	
<i>SAC features</i>									
European dry heath	KH	KH	KH	KH	KH	KH	KH		KH
Blanket bog	Sym	Sym	Sym		Sym	Sym	Sym		
Wet heath	Sym		Sym		Sym	Sym	Sym		
Tall herb ledges	Sym					Sym			
Summit heath	Sym								
Alpine and boreal heath	Sym						Sym		
<i>SSSI features</i>									
Marshy grassland									
Bird assemblage	Sym		Sym		Sym	Sym	Sym		
Broadleaved woodland						KH		KH	
Flush and spring									
Lakes	Sym								

As the heath and blanket bog in the upland area is exceptionally good and exists in a mosaic, it has to be managed together. The management of them may be different but not in conflict – both require light grazing but the bog needs less grazing than the heath. Similarly the holdings with tall herb ledges and submontane heath require very low stocking levels. At the ideal low levels for the most sensitive habitats, much of the heath needs additional management (cutting and/or burning). For this reason the heath is being chosen as the key habitat, not because it has higher priority as far as its conservation value is concerned, but because it needs additional management.

The rocky montane (tall herb ledge) vegetation of Creigiau Gleision with its arctic alpiners and scattered trees is a particularly valued habitat.

The management of this area needs to address the requirements for the upland birds.

Management unit						
CRAFNTANT VALLEY FLOOR						
	27	28	29	30	31	34
SAC	✓	✓	✓	✓	✓	✓
SSSI	✓	✓	✓	✓	✓	✓
NNR/CCW owned	NNR					
SAC features						
European dry heath						
Blanket bog						
Wet heath						
Upland oakwood		KH	KH			
SSSI features						
Marshy grassland	Sym			KH	KH	KH
Bird assemblage						
Broadleaved woodland	Sym	KH	KH			
Flush and spring	KH					

Woodland is largely upland ashwood but includes some upland oakwood .

3.1.2 Carneddau: Eigiau area

Management unit							
	4	5	6	7	8	9	10
SAC	✓	✓	✓	✓	✓	✓	✓
SSSI	✓	✓	✓	✓	✓	✓	✓
NNR/CCW owned							
SAC features							
European dry heath	Sym	Sym	KH	KH	KH	Sym	KH
Blanket bog	KH	KH	Sym	Sym		KH	Sym
Wet heath	sym						
Tall herb ledges		KH					
Siliceous scree							
Summit heath	KH	KH					
Alpine and boreal heath							
Oligotrophic and meso lakes							
Upland oakwood							
SSSI features							

Marshy grassland				Sym			Sym
Bird assemblage				Sym			
Broadleaved woodland				Sym			
Flush and spring				Sym			Sym
Lakes		Sym				Sym	

Management unit								
	11	12	13	14	15	16	17	18
SAC	✓	✓	✓	✓	✓	✓	✓	✓
SSSI	✓	✓	✓	✓	✓	✓	✓	✓
NNR/CCW owned								
<i>SAC features</i>								
European dry heath		Sym	Sym	Sym		Sym	Sym	Sym
Blanket bog	KH	KH	KH	Sym	KH			Sym
Wet heath		Sym	Sym	Sym	Sym			Sym
Tall herb ledges				KH				
Siliceous scree				Sym				
Summit heath				KH				KH
Alpine and boreal heath				KH				KH
Oligotrophic and meso lakes								
Upland oakwood								
<i>SSSI features</i>								
Marshy grassland		Sym	Sym	Sym		Sym	Sym	Sym
Bird assemblage								
Broadleaved woodland		Sym	Sym					
Flush and spring								
Lakes								

3.1.3 Carneddau: Ogwen to Capel Curig

	Management unit					
	35	36	37	38	39	40
SAC	✓	✓	✓	✓	✓	✓
SSSI	✓	✓	✓	✓	✓	✓
NNR/CCW owned						
SAC features						
European dry heath	Sym	Sym	Sym	Sym	KH	Sym
Blanket bog	KH	Sym	Sym	Sym		Sym
Wet heath		Sym	Sym	Sym		Sym
Summit heath			KH	KH		KH
Tall herb ledges						
Siliceous scree			Sym	Sym		Sym
Crevice vegn. on siliceous substrate						
*Alpine and boreal heath		KH	Sym	Sym		Sym
Oligotrophic and meso lakes						
SSSI features						
Lakes			Sym			Sym
Broadleaved woodland						
Flush and spring		Sym				Sym

3.1.4 Carneddau: Commons -Aber and Llanfairfechan, Llanllechid

	Management unit		
	1	2	3
SAC	✓	✓	✓
SSSI	✓	✓	✓
NNR/CCW owned			
SAC features			
European dry heath	Sym	Sym	Sym
Blanket bog	Sym		Sym
Wet heath	Sym		Sym
Summit heath	KH		KH
Tall herb ledges			KH
Alpine and boreal heath	KH		Sym
Crevice vegn. on calcareous substrate			Sym
Siliceous scree			Sym
Crevice vegn. on siliceous substrate			Sym
Oligotrophic – meso lake	Sym		
Hamatocaulis			Sym
SSSI features			
Acid grassland		KH	Sym
Marshy grassland	Sym		Sym
Bird assemblage			
Broadleaved woodland			
Flush and spring	Sym		Sym
Chough	Sym	KS	Sym

3.1.5 Glyderau: North West

Management unit										
	50	65	66	68	69	70	71	72	73	74
SAC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SSSI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NNR/CCW owned										
SAC features										
European dry heath	Sym	Sym	Sym	KH	KH	Sym	KH	KH	KH	KH
Blanket bog	Sym		Sym			KH				Sym
Wet heath	Sym		Sym			Sym			Sym	Sym
Summit heath	KH	KH	KH							
Tall herb ledges										
Crevice vegn. on calcareous substrate		Sym								
Alpine and boreal heath	Sym	Sym								
Siliceous scree			Sym							
Crevice vegn. on siliceous substrate		Sym	Sym							
SSSI features										
Lakes			Sym							

3.1.6 Glyderau: Main block

Management units								
	46	53	54	55	56	57	58	59
SAC	✓	✓	✓	✓	✓	✓	✓	✓
SSSI	✓	✓	✓	✓	✓	✓	✓	✓
NNR/CCW owned		NNR						
SAC features								
European dry heath	Sym							
Blanket bog	Sym	Sym	Sym	Sym	KH	KH	Sym	Sym
Wet heath	Sym	KH						
Rhynchosporion					Sym		KH	
Summit heath	KH	KH	KH	KH	KH		KH	
Tall herb ledges		KH	KH	KH				
Crevice vegn. on calcareous substrate		KH	Sym	Sym				
Alpine and subalpine calcareous grassland		Sym	Sym	Sym				
Alpine and boreal heath		Sym	Sym	Sym		KH		
Crevice vegn. on siliceous substrate		Sym	Sym	Sym				
Siliceous scree		Sym	Sym	Sym				
Species rich Nardus grassland		Sym						
Oligotrophic lakes		Sym	Sym	Sym			Sym	
Upland oakwood							*	
Alkaline fen		Sym	Sym	Sym				
Petrifying springs								
Alpine pioneer vegn.								
SSSI features								
Geological features								
Acid grassland								
Chough								
Flush and spring								
Rare plants and assemblages					KS		KS	

*Woodland creation is being implemented in existing area of hawthorn scrub

Management units							
	60	61	62	63	64	65	67
SAC	✓	✓	✓	✓	✓	✓	✓
SSSI	✓	✓	✓	✓	✓	✓	✓
NNR/CCW owned							
SAC features							
European dry heath	Sym	Sym				Sym	Sym
Blanket bog							KH
Wet heath	Sym						Sym
Rhynchosporion							
Summit heath	KH					KH	KH
Tall herb ledges							
Crevice vegn. on calcareous substrate						Sym	
Alpine and subalpine calcareous grassland							
Alpine and boreal heath	Sym						
Crevice vegn. on siliceous substrate						Sym	Sym
Siliceous scree						Sym	Sym
Species rich Nardus grassland							
Oligotrophic lakes							
Upland oakwood			KH		KH		
Alkaline fen							
Petrifying springs							
Alpine pioneer vegn.							
SSSI features							
Geological features							
Acid grassland	KH	KH		KH		KH	
Chough	KS	KS				KS	Sym
Flush and spring							
Rare plants and assemblages							
Geological features							

3.1.7 Ogwen Valley Floor:

Management Unit									
	41	42	43	44	45	46	47	48	49
SAC		✓	✓	✓	✓	✓		✓	
SSSI	✓	✓	✓	✓	✓	✓	✓	✓	✓
NNR/CCW owned									
<i>SAC features</i>									
European dry heath									
Blanket bog			KH		Sym	KH			KH
Wet heath	KH		Sym		KH	Sym			Sym
Upland oakwood									Sym
<i>SSSI features</i>									
Geological features									
Acid grassland							KH	KH	Sym
Marshy grassland	Sym								Sym
Broadleaved woodland		KH		KH					Sym
Flush and spring									Sym
Rare plants and assemblages									Sym
Bird assemblage	Sym		Sym		Sym	Sym		Sym	Sym

3.1.8 Yr Wyddfa:

	Management Unit								
	75	76	77	78	79	81	82	83	84
SAC	✓	✓	✓	✓	✓	✓	✓	✓	✓
SSSI	✓	✓	✓	✓	✓	✓	✓	✓	✓
NNR/CCW owned									
SAC features									
European dry heath	KH	KH		Sym	Sym	Sym		Sym	Sym
Blanket bog					Sym	KH		KH	Sym
Wet heath					Sym	Sym		Sym	KH
Summit heath			Sym		KH				KH
Tall herb ledges			KH		KH				KH
Crevice vegn. on calcareous substrate			KH	Sym	KH				Sym
Alpine and subalpine calcareous grassland			KH		Sym				
Alpine and boreal heath				KH					
Siliceous scree					Sym				Sym
Crevice vegn. on siliceous substrate			Sym	Sym	Sym				Sym
Oligotrophic lakes			Sym		Sym			Sym	Sym
Alkaline fen			Sym						
Species rich Nardus grassland									
Upland oakwood	KH								
SSSI features									
Geological features									
Acid grassland					Sym				
Marshy grassland	Sym						KH		
Broadleaved woodland	Sym	Sym							
Flush and spring	Sym								
Rare plants and assemblages			Sym		Sym				Sym
Chough					Sym				
Bird assemblage					Sym				
Montane inverts					Sym				Sym

Management Unit							
	85	86	87	88	89	90	91
SAC	✓	✓	✓	✓	✓	✓	✓
SSSI	✓	✓	✓	✓	✓	✓	✓
NNR/CCW owned			NNR	NNR	NNR	NNR	
SAC features							
European dry heath	Sym	Sym	Sym	Sym		KH	KH
Blanket bog		KH	Sym	Sym			
Wet heath	KH	Sym	Sym	Sym			Sym
Summit heath							
Tall herb ledges			KH				
Crevice vegn. on calcareous substrate			KH				
Alpine and subalpine calcareous grassland			Sym				
Alpine and boreal heath			KH	KH			
Siliceous scree							
Crevice vegn. on siliceous substrate			Sym				
Oligotrophic lakes			Sym				
Alkaline fen							
Species rich Nardus grassland			Sym	Sym			
Upland oakwood			KH	KH	KH	KH	
SSSI features							
Geological features							
Acid grassland							
Marshy grassland							
Broadleaved woodland							
Flush and spring							
Rare plants and assemblages							
Chough							
Bird assemblage							
Montane inverts							

3.1.9 Eryri SAC: Waterbodies

Unit No	Unit name	Reservoir	NNR	SAC oligotrophic to meso lake	Other interests	Comments
92	Llyn Llydaw	✓	✓	no		Severe drawdown impacts.
93	Llyn Glaslyn		✓	no		Mining pollution. EA WFD Acidification operational monitoring site (chemistry, inverts, DO).
94	Llyn Nadroedd			Not known		No data
95	Llyn Coch			✓		Monitored 2004-5. Very small and shallow, but good habitat.
96	Llyn Teyrn		✓	✓		Within ECN site so monitoring may be possible via this route.
97	Llyn Glas					No data
98	Llyn Cwm Glas			✓		No data
99	Llyn Cwm Glas Bach			no		No data
100	Llyn Ffynon y Gwas	✓		Not known		No data
101	Llyn Du'r Arddu			✓		No data
102	Llyn Cwmffynon			✓ *	<i>Luronium natans</i> SAC feature	Monitored 2004-5 and in 2006 for <i>Luronium natans</i> which was not found. EA WFD Acidification operational monitoring site (chemistry, inverts, DO).
103	Llyn Ffynnon Llugwy	✓		Not known		No data

104	Llyn Clyd		✓	Not known	Rare invertebrate interest	No data
105	Llyn y Cwn		✓	✓		No data
106	Llyn Bochlwyd			✓	Oligotrophic lake feature. Acidified.	Not monitored.
107	Llyn Idwal		✓	✓ ***	Good quality oligotrophic lake.	Monitored 2004-5. EA WFD surveillance site. Spectacular sponge growths filmed by Paul Kay 2007.
108	Llyn Marchlyn Mawr	✓		no		No data
109	Llyn Marchlyn Bach			Not certain but probably not		No data
110	Llyn Ffynnon Lloer			Not known		No data
111	Llyn Coedty	✓		no		No data
112	Llyn Ogwen			✓ *	<i>Potamogeton x gessnacensis</i> (3 sites in GB but may be underrecorded) Somewhat acidified.	Monitored 2004-5. EA WFD surveillance site.
113	Eigiau	✓		no		No data
114	Llyn Cowlyd	✓		no	Arctic charr – introduced from L. Peris	No data
115	Llyn Anafon	✓		✓ ***	<i>Potamogeton x griffithii</i> (Only Site in Wales, perhaps only site in mainland Britain) <i>Potamogeton alpinus</i> (Only SSSI in Wales) <i>Potamogeton x gessnacensis</i> (3 sites in GB but may be under-recorded) Very unusual habitat – contains both acid and base-rich influences,	Monitored 2007. Severe drawdown problems due a problem with the dam.

					unusually high plant diversity.	
116	Llyn Melynlyn	✓		Not known	Arctic charr – introduced from L. Peris	Visited by T.Hatton -Ellis 2006. Not many plants.
117	Llyn Dulyn	✓		Not known	Arctic charr – introduced from L. Peris	Visited by T.Hatton -Ellis 2006. Not many plants.

4. CONSERVATION OBJECTIVES

Background to Conservation Objectives:

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

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

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

Box 1

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

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

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

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

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

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

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

- Conservation planning and management.

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

- Assessing plans and projects.

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

- Monitoring and reporting.

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

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

b. Format of the conservation objectives

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

Each conservation objective consists of the following two elements:

1. Vision for the feature
2. Performance indicators

As a result of the general practice developed and agreed within the UK Conservation Agencies, conservation objectives include performance indicators, the selection of which should be informed by JNCC guidance on Common Standards Monitoring¹.

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

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

¹ Available through www.jncc.gov.uk and follow links to Protected Sites and Common Standards Monitoring.

Some comments on the features: (Additional to Plan Format)

CCW has produced a vision map which illustrates at a coarse scale the way we would hope to see the habitat types distributed throughout Eryri. This is a useful tool that helps guide our priorities, though some of these visionary outcomes cannot be expected in the short to medium term because mountain vegetation is very slow to recover and also because the expectations do not take into account the practical barriers to achieving them. Not only is Eryri used for grazing livestock but also much of the site is subjected to heavy recreational use by walkers, runners, climbers, hang gliders etc, most of whom use the summits. It may not be realistic to expect to achieve vegetation recovery everywhere that we would hope.

The truly montane SAC features are the main priority for management – the montane and sub-montane heath, the ledge and crevice communities. All of these require grazing exclusion for recovery management so the main management priority is to try and exclude stock from the summits and from the high altitude rocky areas with ledge and crevice vegetation which includes arctic alpine plants.

The blanket bogs require only light grazing. Often these are within mosaics of wet heath, dry heath and acid grasslands. Where sufficiently low grazing can be secured for the blanket bogs, it may be necessary to introduce other forms of management for some of the heath.

Some of the SAC habitats, notably the Petrifying Springs and Alkaline Fens are scattered in small patches and cannot be targeted for management. Their condition will most likely be a consequence of the management for other features. Similarly the Alpine pioneer formations, although an EU priority habitat, is very small in extent only comprising a small number of patches and cannot be specifically managed. It is expected that these habitats will persist as a result of management for the other features, though the latter is very vulnerable to climate change.

With reduced grazing pressure for the montane features, there is likely to be an increase in heath and scrub/woodland. It is accepted that there will be some losses of immobile scree habitat and acid grassland currently maintained by grazing but these will be replaced by more valuable habitats.

Chough require areas of short grazed acid grassland, often within short heath mosaics, for their feeding. Certain areas favoured by chough will be retained in suitable condition for them. This may require shepherding, or it may not need particular management where the sheep continue to graze these short grasslands heavily in preference to surrounding habitats.

Some of the habitats are patchy and interspersed with others. This, and the often difficult terrain makes measurement difficult and impossible to do precisely.

4.1 Conservation Objective for Feature 1: Siliceous alpine and boreal grasslands (EU Habitat Code: 6150)

Vision for feature 1

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

- The high summits of the Carneddau (Carnedd Dafydd, Pen yr Ole Wen, Carnedd Llewelyn, Garnedd Uchaf, Yr Aryg, Foel Grach, Llwytmor, Drosogl, Foel Fras, Pen Llythrig y Wrach and Pen yr Helgi Ddu) the Glyderau (Y Garn, Glyder Fach, Glyder Fawr, Elidir Fach, Carnedd y Ffiliast and Mynydd Perfedd), should each support summit heath vegetation which does not show signs of heavy modification by grazing and/or heavy trampling.
- There should be no further loss of summit heath on Yr Wyddfa. The extent of the habitat at Crib y Ddysgl and Garnedd Uchaf should be retained as an absolute minimum and there should be no loss of quality.
- The vegetation should be dominated by species typical of species of summit heath such as *Racomitrium lanuginosum* (woolly hair moss), *Carex bigelowii* (stiff sedge), shrubs dwarfed by the high altitude conditions such as *Vaccinium myrtillus* (bilberry) and *Salix herbacea*, lichens and montane bryophytes.
- Grasses should not comprise a significant proportion of the vegetation.
- The habitat should grade into montane heath at its lower level.
- All factors affecting the achievement of these conditions are under control.

CCW believes that we should be aiming to achieve this vision because the habitat is of such high conservation value being at its southerly limit in the UK. However this is a very long-term vision and at present we have no means of controlling all of the factors impacting on the feature. However, research has indicated that if we could control the grazing impact the habitat should respond. Exclusion of grazing animals from the most degraded heath is therefore a priority in the Pen yr Ole Wen – Carnedd Dafydd area. It is not possible to predict exactly what quality can be achieved since the habitat is now in a very poor condition and is possibly being impacted to some extent by atmospheric pollution, but any improvement to this habitat will help reduce further erosion and loss of vegetation cover. We cannot make exact inferences from one summit to another since they each have differing amounts of impact.

In the short term we should expect to see increases in the cover of *Racomitrium* and dwarf shrubs while seeing a decrease in grass cover, particularly *Agrostis* species, as nutrients are leached out of the habitat and not replaced.

Performance indicators for Feature 1

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of Siliceous alpine and boreal grasslands	The high summits of the Carneddau and Glyderau should support the habitat, and also at Crib y Ddysgl and Garnedd Uchaf on Yr Wyddfa. Elsewhere on Yr Wyddfa the recreational pressures are too high and the habitat too degraded to expect significant recovery.	<i>Upper limit:</i> none <i>Lower limit:</i> Current altitudinal limit for this habitat on Carneddau and Yr Glyderau. Mapped extent on Yr Wyddfa

<p>A2. Condition of Siliceous alpine and boreal grasslands</p>	<p>Based on the Standard CSM attribute for this feature but not quantified because of uncertainty over quality we can realistically expect.</p>	<p><i>Upper limit:</i> Not required <i>Lower limit:</i> The vegetation should be dominated by species typical of species of summit heath such as <i>Racomitrium lanuginosum</i> (woolly hair moss), <i>Carex bigelowii</i> (stiff sedge), shrubs dwarfed by the high altitude conditions such as <i>Vaccinium myrtillus</i> (bilberry) and <i>Salix herbacea</i>, lichens and montane bryophytes. Cover of these species should be at least 25%.</p> <p>Although some grasses, particularly sheep's fescue, will be present, grasses should not comprise more than 20% of the vegetation.</p> <p>Vegetation should not show signs of heavy modification by grazing and/or heavy trampling. There should be < 20% disturbed bare ground.</p>
<p>Performance indicators for factors affecting the feature</p>		
<p>Factor</p>	<p>Factor rationale and other comments</p>	<p>Operational Limits</p>
<p>F1. Livestock grazing</p>	<p>Sheep favour the well-drained summits and have degraded the montane heath by grazing and manuring. This has caused the decline of the dwarf shrubs and <i>Racomitrium</i> moss and the grasses to increase resulting in a grassy sward in many instances.</p>	<p><i>Upper limit:</i> ideally no grazing but this cannot be achieved. <i>Lower limit:</i> None – the habitat does not require any grazing</p> <p>Grazing control difficult to achieve since there are no barriers to stock. Shepherding is possible in some parts but difficult to monitor success</p>
<p>F2. Trampling by people and livestock</p>	<p>Excessive trampling damages the fragile habitat by erosion and possibly compaction, breaking up elements of the vegetation</p>	<p>No expansion of existing tracks on the summits and ridges</p> <p>It is not possible to control the number of people walking on the summits or force people to stay on the paths but providing a good obvious path for people to follow will reduce damage.</p>
<p>F3. Nitrogen deposition</p>	<p>This probably affects the <i>Racomitrium</i> and lichens. Research into nitrogen deposition is ongoing</p>	<p>It is not possible to set indicators for this likely factor at this point in time. CCW cannot control this factor</p>

[Mapping of the habitat on Yr Wyddfa has recently been undertaken by A. Turner, CCW but the report is not yet available]

4.2 Conservation Objective for Feature 2: Alpine and Boreal Heaths (EU code 4060) (Montane Heath)

Vision for feature 2

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

- Alpine and Boreal heath habitat should cover considerable areas of the Eryri SAC at high altitudes i.e. from about 600m upwards, though it may extend below this in particularly exposed areas.
- It should grade into summit heath on the high summits and ridges, and into dry heath at its lower end.
- This vegetation should be dominated by dwarf shrubs, typically stunted by the high altitude conditions, such as cowberry (*Vaccinium vitis-idaea*), bilberry (*Vaccinium myrtillus*) and mountain crowberry (*Empetrum hermaphroditum*), prostrate ling (*Calluna vulgaris*) and in some stands dwarf juniper (*Juniperus communis* ssp. *nana*.) Other montane species such as wooley hair moss (*Racomitrium lanuginosum*) and other montane bryophytes and lichens should be present.
- Although some grasses, particularly sheep's fescue, will be present, they should not be at high cover.
- In the long term we expect existing habitat to be retained and to improve in quality in its current locations, and also to expand into other suitable localities where the habitat now exists in a degraded state.
- All factors affecting the achievement of these conditions are under control

Although much of this habitat has been converted to grassland over many years, there are still good stands of it, notably on Lliwedd on the Wyddfa massif and below the summits of Carnedd Dafydd and Pen y Ole Wen on the Carneddau massif. There is also good quality habitat in the Glyderau as at Esgair Felen. Elsewhere it is very fragmented and there is no clear zonation between degraded montane heath and the more ubiquitous dry heath.

We expect to see a decline in the grasses, especially *Agrostis* species as nutrients get leached out and don't get replaced, and an increase in *Racomitrium* and dwarf shrubs

Performance indicators for Feature 2

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of Alpine and Boreal Heaths	<p>Lower limit is based on current mapped extent</p> <p>Nb. It is not possible to measure the total habitat accurately everywhere since much is difficult to access and there is a gradation between this feature and dry heath at its lower limit.</p>	<p><i>Upper limit:</i> none</p> <p><i>Lower limit:</i></p> <p>The current extent of the better stands which include: the H20b <i>Vaccinium myrtillus</i> – <i>Racomitrium lanuginosum</i> heath <i>Cetraria islandica</i> sub-community heath type at Carnedd Dafydd and Pen y Ole Wen, and</p>

		<p>the H15 <i>Calluna vulgaris</i> – <i>Juniperus communis</i> ssp. <i>nana</i> heath and H15 <i>Vaccinium myrtillus</i> variant heath type at Lliwedd</p> <p>At least the mapped extent of the habitat on the rest of Eryri</p>
A2. Condition of Alpine and Boreal Heaths	Based on the Standard CSM attribute for this feature. Modified according to site specific requirements – the better existing stands require more stringent quality thresholds than degraded habitat.	<p>In the good quality mapped habitat at Carneddau (Carnedd Dafydd and Pen yr Ole Wen) and Yr Wyddfa (Lliwedd):</p> <p>Within a 1m radius of each sampling point.</p> <ol style="list-style-type: none"> 1. At least one dwarf shrub species is present. 2. At least one species of moss, liverwort or non-crustose lichen is present. 3. At least 66% of the vegetation is made up of dwarf shrub species and lower plants. 4. <10% cover of <i>Nardus stricta</i>. 5. Non-native species are absent. 6. <20% of the vegetation cover is composed of graminoids and <i>Galium saxatile</i>. 7. <5 rosettes of <i>Juncus squarrosus</i> are present. 8. <i>Racomitrium lanuginosum</i> and lichen cover is greater than 1/3 of the quadrat (1m radius) and <p>Within a 5m radius of each sampling point.</p> <p>Signs of burning and bare soil (>10% cover) are absent.</p> <p>Additionally at Yr Wyddfa (Lliwedd):</p> <p>Within a 1m radius of each sampling point.</p> <p><i>Juniperus communis</i> ssp. <i>nana</i> is present plus one other dwarf shrub <u>and</u> <i>Vaccinium myrtillus</i> is less than 50% cover of the quadrat.</p>
A3. Restoration of Alpine and Boreal Heaths	It is impossible to be prescriptive over exactly what is expected for the heavily degraded habitat but expect that habitat can expand into suitable degraded areas We expect considerable recovery of this habitat in the long term but cannot know the future extent or quality that can be	<p><i>Upper limit:</i> none</p> <p><i>Lower limit:</i> some expansion of mapped extent on each massif.</p> <p>Signs that indicate improvement in condition of degraded habitat would be gradual increases in the cover of</p>

	achieved.	dwarf shrubs, bryophytes and lichens, and decreasing grass cover.
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
F1. Livestock grazing	High levels of sheep grazing have caused the decline of the dwarf shrubs and Racomitrium moss while the grasses have increased in cover resulting in a grassy sward in many instances.	<i>Upper limit:</i> there should be no grazing of this habitat, particularly for restoration of the habitat <i>Lower limit:</i> None – the habitat does not require any grazing Grazing control difficult to achieve since there are no barriers to stock. Shepherding is possible but difficult to monitor success
F2. Trampling by people and livestock	Excessive trampling damages the fragile habitat by erosion and possibly compaction, breaking up elements of the vegetation	No expansion of existing tracks on the summits and ridges. It is not possible to control the number of people walking on the summits or force people to stay on the paths but providing a good obvious path for people to follow will reduce damage.
F3. Nitrogen deposition	This probably affects the Racomitrium and lichens. Research into nitrogen deposition is ongoing	It is not possible to set indicators for this likely factor at this point in time. CCW cannot control this factor
F4. Burning	Burning degrades or destroys the habitat by reducing or eliminating the bryophytes, lichens and the dwarf shrubs	No burning

4.3 Conservation Objective for Feature 3:

Hydrophilous tall herb communities of plains and of the montane to alpine levels (EU Habitat Code: 6430)

Vision for feature 3

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

- The area of tall herb ledge must be stable, or increasing in the long term. There will be no loss of tall herb ledge vegetation and the feature will occur in all management units in which it currently occurs
- Tall herb ledge vegetation will develop on ledges and on damp calcareous grassland below cliffs where the potential exists but expansion is currently prevented by grazing.
- Tall herb vegetation will consist of a number of flowering plant species such as Lady's mantle *Alchemilla spp.*, Meadowsweet *Filipendula vulgaris*, Globeflower *Trollius europaeus*, Welsh poppy *Meconopsis cambrica*, Devilsbit scabious *Succisa pratensis*, Ox-eye daisy *Leucanthemum vulgare*, Wild Angelica *Angelica sylvestris*, Roseroot *Sedum rosea*, Lesser meadow rue *Thalictrum minus* and Common valerian *Valeriana officinalis*
- The flowering plants will be ungrazed and able to mature and set seed freely

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of tall herb ledge vegetation	Lower limit is based on current mapped extent and an expectation that habitat can expand into suitable potential degraded areas	<i>Upper limit:</i> none <i>Lower limit:</i> The current extent of the mapped habitat <u>and</u> The ledges identified as potential at Cwm Idwal
A2. Condition of tall herb ledge vegetation	Based on the Standard CSM for this feature. Modified according to site specific requirements. The attributes address the requirement for no grazing	The vegetation supports at least one of the species above, most of which must be at least 20cm tall. When assessed between July and September, at least some of the plants are flowering and/or setting seed.
A3. Restoration of tall herb ledge vegetation	There is insufficient information on the physical nature (base status of soils, water chemistry and quantity etc) to accurately predict at this small scale where this habitat can expand	<i>Upper limit:</i> none <i>Lower limit:</i> in addition to expansion onto ledges identified as potential at Cwm Idwal, some evidence of expansion of mapped extent at other locations on Eryri, notably on Yr Wyddfa and possibly Ysgolion Duon.
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
F1. Livestock grazing	Grazing by sheep and goats have caused the decline of the habitat on any accessible ledges. Dwarfed flowering plants, which are prevented from	<i>Upper limit:</i> there should be no grazing of this habitat. <i>Lower limit:</i> None – the habitat does not require any grazing

	flowering and setting seed, may persist with a short mossy turf.	Grazing control difficult to achieve since there are no barriers to stock. Shepherding is possible but difficult to monitor success. Goats can only be controlled by culling
F2. Recreational activity	Climbing or scrambling over the ledges damages the fragile habitat by breaking up elements of the vegetation and causing slippage of soil.	No climbing should be permitted where there is any risk of damage to this habitat.

4.4 Conservation Objective for Feature 4: Calcareous rocky slopes with chasmophytic vegetation (EU Habitat Code: 8210)

Vision for feature 4

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

- The feature must be stable or increasing in the long term. There will be no loss of calcareous chasmophytic vegetation and it will continue to occur in all of management units in which it currently occurs.
- The feature must continue to support a range of arctic alpine plant populations.
- The plants will be ungrazed and able to mature and set seed freely, or non-flowering plants reproduce by propagules or vegetative means.
- The feature will not be inhibited by invasive non-native plant species.

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of calcareous chasmophytic vegetation	This cannot possibly be measured accurately since much occurs on cliffs which are inaccessible other than by experienced climbers, and access could cause damage to the fragile habitat. Refer to SAC monitoring report for this feature (Creer 2006)	<i>Upper limit:</i> none <i>Lower limit:</i> No loss in extent (272.38 ha) of currently known feature, notably at Clogwyn y Garnedd, Cwm Idwal, Cwm Glas and Ysgolion Duon. (See plots set up by Creer 2006 and by the LIFE SAC monitoring team in 1998.)
A2. Condition of calcareous chasmophytic vegetation	Based on the Standard CSM for this feature. Modified according to site specific requirements.	Within the established plots in the locations above, at least 4 of the following species should be present: <i>Alchemilla alpina</i> , <i>Alchemilla glabra</i> , <i>Armeria maritima</i> , <i>Asplenium adiantum-nigrum</i> , <i>Asplenium trichomanes</i> , <i>Asplenium viride</i> , <i>Carex pulicaris</i> , <i>Cystopteris fragilis</i> , <i>Hieracium</i> spp., <i>Lloydia serotina</i> , <i>Minuartia verna</i> , <i>Oxyria digyna</i> , <i>Polystichum aculeatum</i> , <i>Polystichum lonchitis</i> , <i>Saxifraga hypnoides</i> , <i>Saxifraga oppositifolia</i> , <i>Saxifraga stellaris</i> , <i>Sedum rosea</i> , <i>Selaginella selaginoides</i> , <i>Silene acaulis</i> , <i>Thalictrum alpinum</i> , <i>Thalictrum minus</i> , <i>Thymus polytrichus</i> , <i>Trollius europaeus</i> .

	<p>This habitat should not be grazed.</p> <p><i>Epilobium brunescens</i> is present in much of the habitat</p>	<p>No signs of grazing or browsing. In practice, if the calcareous grassland or tall herb ledges below do not show signs of grazing or browsing it can be assumed that the chasmophytic vegetation is not grazed.</p> <p>Less than 1% non-native species present.</p>
A3. Restoration of calcareous chasmophytic vegetation	This habitat should expand and improve its condition in the absence of grazing	<p><i>Upper limit:</i> none</p> <p><i>Lower limit:</i> Some increase in present extent</p>
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
F1. Livestock grazing	Grazing by sheep and goats have caused the decline of the habitat.	<p><i>Upper limit:</i> There should be no grazing of this habitat.</p> <p><i>Lower limit:</i> None – the habitat does not require any grazing</p> <p>Grazing control difficult to achieve since there are no barriers to stock. Shepherding is possible but difficult to monitor success.</p> <p>Goats can only be controlled by culling</p>
F2. Recreational activity	Climbing or scrambling over the ledges damages the fragile habitat by breaking up elements of the vegetation and causing slippage of soil.	Climbing activities should be controlled where any risk of damage to this habitat occurs.

**4.5 Conservation Objective for Feature 5: Alpine and subalpine calcareous grasslands
(EU Habitat Code: 6170)**

Vision for feature 5

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

- This habitat should remain in its current locations although there may be some shifts in its extent.
- The feature should continue to support the characteristic plants including arctic alpine plant species.
- The only acceptable losses of this habitat should be due to succession to other valuable montane communities such as tall herb ledge vegetation.

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of Alpine and subalpine calcareous grasslands	The community is normally maintained as a ‘grassland’ or dwarf herb ledge community by the thin soils and harsh climatic conditions in which it is found. However there could be small shifts to other montane communities where the habitat has been maintained by grazing	<i>Upper limit:</i> none <i>Lower limit:</i> Current mapped extent, though some shifts towards other montane communities such as tall herb ledge vegetation would be acceptable if the feature has been maintained by grazing. Refer to SAC monitoring report for this feature (Lewis 2005)
A2. Condition of Alpine and subalpine calcareous grasslands	The Standard CSM for this feature has had to be heavily modified to accommodate the Eryri habitat	At least 33% of the feature should comprise forbs including some of the following species: <i>Alchemilla sp.</i> , <i>Carex flacca</i> , <i>Carex pulicaris</i> , <i>Linum catharticum</i> , <i>Lotus corniculatus</i> , <i>Plantago maritima</i> , <i>Saxifraga oppositifolia</i> , <i>Selaginella selaginoides</i> , <i>Silene acaulis</i> , <i>Thalictrum alpinum</i> , <i>Thymus polytrichus</i> , <i>Saxifraga hypnoides</i> , <i>Parnassia palustris</i> , <i>Campanula rotundifolia</i> , <i>Pimpinella saxifraga</i> The habitat needs to be assessed at Y Gribbin (Y Glyderau) and Creigiau Gleision (Carneddau), particularly since these locations support <i>Dryas octopetala</i> , a rare species on Eryri
	This habitat should not be grazed <i>Epilobium brunescens</i> is the only non-native plant species present and although it does not appear to adversely affect the habitat, the situation needs to be monitored	No signs of grazing or browsing. <1% non-native species present

<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
F1. Livestock grazing	Grazing by sheep and goats have caused the decline of the montane habitats.	<i>Upper limit:</i> there should be no grazing of this habitat. <i>Lower limit:</i> None – the habitat does not require any grazing
F2. Recreational activity	Climbing or scrambling over the cliffs and ledges could damage the fragile habitat by breaking up elements of the vegetation	Climbing activities should be controlled where any risk of damage to this habitat occurs

4.6 Conservation Objective for Feature 6: Siliceous rocky slopes with chasmophytic vegetation (EU Habitat Code: 8220)

Vision for feature 6

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

- This habitat should support a range of bryophytes and ferns in suitable crevices on acid rocks.
- The feature should not be damaged by grazing.
- It should be widespread on suitable moist acidic rock crevices on each massif .

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of Siliceous rocky slopes with chasmophytic vegetation	This is impossible to measure as the community is widespread on the cliffs and boulders of Eryri, and much of it is not accessible	<i>Upper limit:</i> none <i>Lower limit:</i> none set but management of the other montane features should ensure that there are no losses other than as a result of climatic or other factors beyond CCW's control
A2. Condition of Siliceous rocky slopes with chasmophytic vegetation	The Standard CSM for this feature has had to be heavily modified to accommodate the Eryri habitat See SAC monitoring report Creer 2006	Comparison should be made of the feature at Cwm Idwal and Clogwyn y Garnedd against surveillance photos taken by CCW Life project in 1998 There must be no significant signs (< 50% live leaves) of grazing or browsing damage. < 1% non-native species present.
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
F1. Livestock grazing	Grazing by sheep and goats may damage the feature	<i>Upper limit:</i> there should ideally be no grazing of this habitat, but it is probably less palatable than other plant communities. Therefore we have addressed this factor under 'condition' above rather than assume that it is unfavourable if there are stock in the area. <i>Lower limit:</i> None – the habitat does not require any grazing
F2. Recreational activity	Climbing or scrambling over the cliffs and ledges could damage this habitat	Further identification of vulnerable stands needs to be undertaken so that any problem can be addressed.

4.7 Conservation Objective for Feature 7: Siliceous scree of the montane to snow levels
(EU Habitat Code: 8110)

Vision for feature 7

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

- The naturally mobile scree on each massif will have open vegetation on or among the boulders, with *Cryptogramma crispera*, *Deschampsia flexuosa*, *Festuca ovina*, *Galium saxatile*, *Huperzia selago* and an extensive and varied bryophyte flora.
- There will not be excessive disturbance to the as a result of human or animal activity.

Performance indicators for feature condition		
Attribute	Attribute rationale and other comments	Specified limits
A1. Extent of Siliceous scree of the montane to snow levels	Some reduction in size of stands is inevitable and acceptable as a result of management of other habitats. Heath is likely to colonise less mobile areas of scree.	<i>Upper limit:</i> none required <i>Lower limit:</i> no losses due to anthropogenic pressures (paths etc).
A2. Condition of Siliceous scree of the montane to snow levels	Based on the CSM attribute for this feature but modified. Not all of each stand has to meet CSM as we will accept stabilisation as a result of reduced grazing and the establishment of woody species in the less mobile areas.	The naturally mobile high montane stands on the Carneddau, Glyderau and Yr Wyddfa will comprise open vegetation on stable igneous scree or among boulders, with <i>Cryptogramma crispera</i> , <i>Deschampsia flexuosa</i> , <i>Festuca ovina</i> , <i>Galium saxatile</i> , <i>Huperzia selago</i> and an extensive and varied bryophyte flora. <20% of the ground cover should be disturbed by human or animal paths, scree running, or vehicles.
Performance indicators for factors affecting the feature		
Factor	Factor rationale and other comments	Operational Limits
F1. Livestock grazing	Removal of grazing may cause some of the less mobile areas of scree stands (currently in an arrested successional state) to become less open and ultimately become vegetated over. Grazing at very low levels is unlikely to damage the scree.	<i>Upper limit:</i> This is determined by management for the other montane features. <i>Lower limit:</i> None where adjacent habitat does not require any grazing
F2. Recreational activity	Scree running, extensive use by walkers	None set

4.8 Conservation Objective for Feature 8: Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea* (EU Habitat Code: 3130)

Vision for feature 8

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

- Each of the lakes has a macrophyte flora which includes some of the characteristic species such as *Littorella uniflora*, *Lobelia dortmanna*, *Isoetes lacustris*, *Myriophorum alterniflorum*, *Juncus bulbosus*, *Potamogeton* species and *Subularia aquatica*
- The lakes which have not been dammed for use as reservoirs retain a natural profile.
- All of the lakes show a characteristic vegetation zonation from the shore to the deeper water.
- Water quality of each lake is within parameters which are suitable to support the characteristic flora and fauna

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of Oligotrophic to mesotrophic standing waters		<i>Upper limit:</i> none <i>Lower limit:</i> no losses of extent other than due to climatic conditions
A2. Condition of Oligotrophic to mesotrophic standing waters	Based on the CSM attributes for this feature.	Each of the lakes meets CSM attributes All of the water quality parameters must be met Any indication of former acidification must be showing improvement Nb. Llyn Idwal and Llyn Anafon are more mesotrophic and species rich than most of the Eryri lakes and the rare species they support must be used as ‘indicators of local distinctiveness’
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
F1. Abstraction	Applies to reservoirs There should be no new abstractions where this could affect the feature	<i>Upper limit:</i> Abstraction should not exceed limits of any abstraction licence and should not expose macrophyte communities of the shallow water close to the shore.
F2. Recreational activity	Fishing – stocking with native and non-native fish	<i>Upper limit:</i> No stocking with non-native fish and any stocking with native species must be strictly controlled

4.9 Conservation Objective for Feature 9: North Atlantic wet heaths with *Erica tetralix* (EU Habitat Code: 4010

Vision for feature 9

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

- The feature must be stable or increasing in the long term.
- The habitat will typically comprise *Erica tetralix* and *Calluna vulgaris* and mosses on a wet peaty substrate with a range of small flowering plants such as bog asphodel *Narthecium ossifragum*, milkwort *Polygala serpyllifolia*, Common butterwort *Pinguicula vulgaris*, small sedges and round leaved sundew *Drosera rotundifolia*.

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of wet heath	There should be no further losses of blanket bog to wet heath unless the bog is heavily degraded and a decision made by CCW to manage it as wet heath	<i>Upper limit:</i> no expansion into intact blanket bog <i>Lower limit:</i> no loss of extent except where habitat existed on degraded blanket bog and that habitat has been restored
A2. Condition of wet heath	Based on the CSM attribute for this feature but modified to reflect local characteristics	In the following units: Cwm Idwal, Blaen y Nant, Gwern Gof Uchaf, Gwern Gof Isaf, Hafod y Porth, Hafod y Llan, Gwastadanas (Wyddfa), Gwastadanas (Glyderau) Ffridd Uchaf and Dyffryn Mymbyr 80% of the wet heath meets the defined standard, In the remaining units, 60% of the wet heath meets the defined standard Good quality wet heath is defined as vegetation where within a given 1m radius search area: <ol style="list-style-type: none"> 1. The combined cover of <i>Erica tetralix</i> and <i>Calluna vulgaris</i> is at least 10%. 2. At least 3 of the following taxa are present <i>Narthecium ossifragum</i>, <i>Carex</i> spp, <i>Rhynchospora alba</i>, <i>Polygala serpyllifolia</i>, <i>Eriophorum angustifolium</i>, <i>Pinguicula vulgaris</i>, <i>Lycopodiella inundata</i>, branched <i>Cladonia</i> spp. <i>Trichophorum cespitosum</i> and <i>Sphagnum</i> spp. 3. The cover of <i>Molinia caerulea</i> is <50% cover; 4. <i>Vaccinium myrtillus</i> is < 1%;

		<p>5. <i>Juncus effusus</i> is < 1%.;</p> <p>6. No more than 3 plants of <i>Juncus squarrosus</i> are present.</p> <p>And within a 5m radius area of search</p> <p>7. Bracken, trees, saplings and scrub are < 20%.</p> <p>8. <10% of the area will be bare ground (bare humus, bare peat, bare mineral soil, bare gravel, or soil covered only by an algal mat), except where there is marsh clubmoss (<i>Lycopodiella inundatum</i>) present in which case a higher percentage may be acceptable.</p>
Performance indicators for factors affecting the feature		
Factor	Factor rationale and other comments	Operational Limits
F1. Livestock grazing	Heavy grazing is detrimental to the habitat.	<p><i>Upper limit:</i> Can only be determined at local level and considering surrounding habitats. Overgrazing would be reflected in the performance indicators.</p> <p><i>Lower limit:</i> None set but undergrazing would be reflected by the performance indicators.</p>
F2. Recreational activity	Trampling damages the habitat (though drier routes are selected where possible)	Paths should avoid this habitat
F3 Burning	Burning can be detrimental to wet heath as fire can damage the bryophyte layer and encourages a vigorous re-growth of more competitive, fire-resistant species like purple moor-grass.	No burning likely to damage wet heath should be consented

4.10 Conservation Objective for Feature 10: European dry heath (EU Habitat Code: 4030)

Vision for feature 10

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

- The feature must be stable or increasing in the long term.
- The habitat will be dominated by at least two dwarf shrub species, usually heather *Calluna vulgaris* and bilberry *Vaccinium myrtillus*, but sometimes western gorse *Ulex gallii* or crowberry *Empetrum nigrum* may be prominent.
- There will be a mixed age range of heath at an appropriate scale which includes stands of young vigorous dwarf shrubs, mature stands where the heather is becoming senescent, and all age ranges in between.
- The heath shrubs will not exhibit forms characteristic of overgrazing.
- There will be no signs of frequent burning nor reversion to grassland.
- All factors affecting the achievement of these conditions are under control.

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of European dry heath	Heath will expand into other habitats with relaxation of grazing and this is acceptable except possibly where acid grassland is prioritised for chough feeding. These areas will have separate objectives.	<i>Upper limit:</i> none necessary <i>Lower limit:</i> no loss of mapped extent overall, though small shifts between communities are likely
A2. Condition of European dry heath	Based on the CSM attribute for this feature but these need to be modified where necessary to accommodate differences across the site. The standard may need to be raised for some areas of heath to reflect the existing high quality, particularly where there is a good bryophyte and/or lichen component, but possibly lowered in certain other areas. Any modification to a lower standard must always be discussed with a relevant HQ specialist.	On the following units at least 80% of the heath meets the CSM standards: Farchwel, Cefn Cyfarwydd, Cae Crwn, Bryn Dansi, Rowlyn Isaf, Cwm Idwal, Blaen y Nant, Gwern Gof Isaf, Gwern Gof Uchaf, Dyffryn Mymbyr, Moel y Ci, Moel Rhiwen On all of the remaining units at least 60% of the heath meets the CSM standards

<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
F1. Livestock grazing	Some light grazing needed but it is not possible to set precise limits for the whole feature because of the open nature of the mountain	<i>Upper limit:</i> None set <i>Lower limit:</i> None set Results of grazing will be reflected by the performance indicators used. There should be no widespread mat, topiary or drumstick forms of heather, although small localised patches may be inevitable (adjacent to paths for example).
F2. Burning and cutting	Where grazing is insufficient to maintain the structure of the heath, small scale rotational burning and/or cutting may need to be considered	No burning or cutting without consent and there should be a heather management plan in place. No burning on rocky slopes or where there is a risk to adjacent habitats

4.11 Conservation Objective for Feature 11: Blanket bog (EU Habitat Code: 7130)

Vision for feature 11

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

- The extent of this habitat should be of the order of 1342 ha (as notified on the N2K data form). This figure however includes a considerable amount of degraded blanket bog. At present it is unknown how much of this is capable of restoration to good quality blanket bog habitat.
- The good quality blanket bog will support typical species e.g. oligotrophic *Sphagnum* spp., cotton grass *Eriophorum* spp, ling *Calluna vulgaris*, bell heather *Erica cinerea*, crowberry *Empetrum nigrum*, cow berry *Vaccinium vitis-idaea*, and cranberry *Vaccinium oxycoccus*.
- The intact habitat will not show any signs of degradation as a result of overgrazing, drainage, or burning, such as depletion of dwarf shrubs and sphagna with increased grass cover.
- The degraded habitat will not show any recent signs of further degradation as a result of overgrazing, drainage or burning.
- All factors affecting the achievement of these conditions are under control.

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of blanket bog	Lower limit is based on the approximate current extent – 1342 ha	Upper limit: none Lower limit: no further losses to grassland. Some degraded bog may be re-classified as wet heath (subject to further assessment of the blanket bog feature)
A2. Condition of blanket bog	The standard may need to be raised for some areas of bog to reflect the existing high quality, but possibly lowered in certain other areas. Any modification to a lower standard must always be discussed with a relevant HQ specialist.	Upper limit: None Lower limit: At least 70% of the blanket bog (based on known areas which have not been heavily degraded) will meet quality criteria based on CSM attributes, but may be modified slightly for different parts of the site where quality varies because of wetness, peat depth, past management etc. No limits have yet been set for the degraded bog since this needs further study.
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
F1. Livestock grazing	Bog upslope from the valley floors should only receive light grazing to avoid damage to the <i>Sphagnum</i> layer and dwarf shrubs.	<i>Upper limit:</i> not set The habitat cannot be managed in isolation from surrounding habitats, though sheep generally tend to avoid wet blanket bog in

	Bog in valley floor contexts, particularly where dominated by <i>Molinea caerulea</i> , requires a higher level of grazing, preferably by cattle.	favour of drier habitats. Grazing levels in the management unit must be appropriate to the requirements of this habitat and focussed between April and October. There should be no supplementary feeding on examples of this habitat <i>Lower limit:</i> none necessary in the life of this plan.
F2. Burning and/or cutting	No burning or cutting should be undertaken on this habitat.	Where heath and blanket bog exists in a mosaic, it may in rare circumstances be necessary to undertake cutting on a small scale within drier bog to reduce fire risk (i.e. break up large blocks). This can only be done via a consented plan for a unit.
F3. Gorse invasion	This can occasionally happen on drier blanket bog	Gorse should be removed by cutting, when conditions permit, and treatment of re growth
F4. Drainage	Blanket bog should never be drained. No major drainage should be allowed on the SAC and careful consideration is necessary when schemes involving minor drainage for their potential effects on nearby blanket bog	Drainage is a OLDSI and must be considered on an individual basis.
F5. Damage from Vehicles	The surface is readily damaged from compaction or the vegetation being broken up	No new tracks through this habitat and prevent encroachment onto bog from widening of existing tracks
F6. Atmospheric deposition	Blanket bog is sensitive to the deposition of nutrients from the atmosphere, and has a low estimated critical load for N (5-10 kg N/ha/yr) which is heavily exceeded at this site (29.3 kg N/ha/yr – source UK Air Pollution Information Service – www.apis.ac.uk). Long-term reductions in loading will require concerted policy action. More locally, development control measures must be used to reduce or eliminate point-source emissions.	Upper limit: 10 kg N/ha/yr Lower limit: None.

4.12 Conservation Objective for Feature 12: Depressions on peat substrates of the Rhynchosporion (EU Habitat Code: 7150)

Vision for feature 12

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

- The extent has not been fully measured because the nature of the habitat is small scale and patchy within mosaics of blanket bog and wet heath. However the extent should be at least that which has been mapped.
- The habitat, characterised by white beak sedge *Rhynchospora alba* will support a range of plant species such as bog pimpernel *Anagallis tenella*, ling *Calluna vulgaris*, round leaved sundew *Drosera rotundifolia*, cross-leaved heath *Erica tetralix*, cottongrass *Eriophorum angustifolium*, marsh St John’s wort *Hypericum elodes*, purple moor grass *Molinia caerulea*, bog asphodel *Narthecium ossifragum*, bog pondweed *Potamogeton polygonifolius*, *Sphagnum* spp., and short sedges.
- There will be no signs of excessive grazing which would result in large areas of bare peat and possibly significant cover of rushes *Juncus* spp.
- Drainage or burning would damage this habitat and neither activity should be consented where this habitat could potentially be affected.
- At Cwmffynnon and other small areas in the Glyderau, the habitat supports the uncommon species, marsh clubmoss *Lycopodiella inundata*. Here we would expect to see frequent small patches of bare peat which support the species. Many of these areas may be caused by vigorous flushing of water rather than by grazing animals.

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of <i>Rhynchosporion</i>	Lower limit is based on the approximate current mapped extent	<i>Upper limit:</i> none – as dictated by hydro-ecological potential. <i>Lower limit:</i> none set
A2. Condition of <i>Rhynchosporion</i>	Each of the plots recorded by the SAC monitoring team at Cwmffynnon and Pont ar Gromlech reach the required standard (CSM) for this feature - see SAC monitoring report for this feature (Creer 2006)	<i>Upper limit:</i> Not required <i>Lower limit:</i> All pass the condition assessment In a 50cm radius: Dwarf shrub cover is <50%. <i>Rhynchospora alba</i> is present plus one of the following, <i>Sphagnum</i> spp., <i>Drosera rotundifolia</i> . < 20 shoots of tall juncii Sward height is between 2cm and 30cm

		Patches of bare ground (excluding rocks) > 20cm x 20cm which contain hoof prints are absent
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
F1. Livestock grazing	<p>Heavy grazing could damage the vegetation, reduce the range and cover of plants species and create large bare areas.</p> <p>Insufficient grazing could result in a closed cover of dwarf shrubs with reduced cover of bryophytes and other plant species.</p> <p>Inappropriate grazing levels could cause losses of marsh clubmoss <i>Lycopodiella inundatum</i></p>	Grazing levels have to be considered along with the management of the other adjacent features. Any localised problem that arises needs to be addressed on a site specific basis
F2. Drainage or burning	Each of these activities would damage or destroy the habitat and will not be consented.	<i>Upper limit:</i> No drainage or burning

4.13 Conservation Objective for Feature 13: Species-rich Nardus grassland on siliceous substrates in mountain areas
(EU Habitat Code: 6230)

Vision for feature 13

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

- The extent will be at least 10 hectares of the habitat to include 5 ha on the slopes above Llyn Llydaw.
- The grassland will support a range of plant species such as Harebell *Campanula rotundifolia*, Eyebright *Euphrasia spp.* Devilsbit scabious *Succisa pratensis*, Wild thyme *Thymus polytrichus*, Heath speedwell *Veronica officinalis*, Spring sedge *Carex caryophyllea*, Flea sedge *Carex pulicaris*, Carnation sedge *Carex panicea*, Lady’s mantle *Alchemilla glabr.*
- There will not be any significant cover of invasive species. New Zealand willowherb, *Epilobium brunnescens* is a long established alien plant on the site and is accepted at present as it doesn’t appear to adversely affect the feature. (At present CCW has no knowledge of any means of reducing or eliminating it)

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of species-rich Nardus grassland	It is difficult to be precise on an area figure, especially considering that management on Eryri is mostly targeted at the montane habitats that require little or no grazing while the species-rich Nardus grassland relies on light grazing for its maintenance. This figure is based on the objective to retain the 5 ha on the slopes above Llyn Llydaw and for at least another 5ha to remain elsewhere.	<i>Upper limit:</i> none <i>Lower limit:</i> 10 hectares but may be revised when NVC mapping of Eryri SAC is complete.
A2. Condition of species-rich Nardus grassland	The plots recorded by the SAC monitoring team on Yr Wyddfa on the slopes above Llyn Llydaw, and on the slopes of the western Carneddau reach the modified CSM attributes for this feature. Elsewhere there will be some acceptance if the small scattered patches fail to meet this as a result of management for other features, though this is unlikely because. grazing reduction for the montane features should benefit this habitat	<i>Upper limit:</i> Not required <i>Lower limit:</i> based on CSM modified to meet local variation and character . See monitoring report (Lewis 2006) Within a 1m radius: At least 50% of the vegetation should consist of forbs or sedges with the exception of <i>Trifolium repens</i> , <i>Bellis perennis</i> , <i>Ranunculus repens</i> , thistles and large docks. (On Eryri the feature supports <i>Cirsium palustre</i> which is not counted as a negative species as are the other thistles) At lease 2 of the following species should be present:

		<p><i>Thymus polytricus</i>, <i>Alchemilla alpina</i>, <i>Alchemilla glabra</i> <i>Campanula rotundifolia</i>, <i>Euphrasia</i> spp. <i>Danthonia decumbens</i>, <i>Carex pulicaris</i>,</p> <p>At least 25% of the vegetation should be >5 cm and at least 25% of the vegetation should be <5cm tall,</p> <p>There should be <10% bare ground.</p>
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
F1. Livestock grazing	<p>Heavy grazing could damage the vegetation and change and reduce the range and cover of flowering plants species.</p> <p>Insufficient grazing could make the habitat more grassy with reduced cover and range of forbs.</p>	<p><i>Upper limit:</i> This has to be considered along with the management of the other features. Any localised problem that arises needs to be addressed on a site specific basis</p> <p><i>Lower limit:</i> Provided there is some grazing in the compartment, under-grazing is unlikely to arise as stock will preferentially graze this more mineral rich vegetation.</p>

**4.14 Conservation Objective for Feature 14: Old sessile oakwoods with Ilex and Blechnum
(EU Habitat Code: 91A0)**

Vision for feature 14

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

- The extent is increasing.
- The woodland comprises locally native canopy forming trees including: *Quercus petraea*, *Betula pubescens*, *B. pendula*, *Fraxinus excelsior* and *Sorbus aucuparia*.
- There is a mixed age structure within the woodland.
- Regeneration is occurring and sufficient seedlings can grow on to saplings and ultimately canopy trees.
- There are no significant alien species.

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of Old sessile oakwoods	There may be localised issues where woodland should not expand into other habitats, but it is not possible to set a limit on this at present.	<i>Upper limit:</i> none set <i>Lower limit:</i> in the short term at least the current mapped extent. Some stands should show some measurable increase in the long term

<p>A2. Condition of Old sessile oakwoods</p>	<p>These attributes identify the cyclical natural processes which should occur in the woodland. The requirement for ‘undamaged’ saplings also addresses damage by goats or sheep.</p>	<p>Native tree seedlings should be present within each woodland block.</p> <p>Undamaged saplings of native tree species should be present within each woodland block.</p> <p>Dead wood should be present</p>
<p><i>Performance indicators for factors affecting the feature</i></p>		
<p><i>Factor</i></p>	<p><i>Factor rationale and other comments</i></p>	<p><i>Operational Limits</i></p>
<p>F1. Livestock grazing</p>	<p>Ideally there should be no grazing, especially while woodlands are in a recovery stage. However it is not always possible to exclude animals totally and goats can damage and destroy saplings. This is addressed under ‘condition’ above.</p>	<p><i>Upper limit:</i> No grazing where woodland is in a recovery stage <i>Lower limit:</i> No grazing. Some light grazing may be acceptable when a woodland has recovered and has a healthy population of saplings.</p>
<p>F2. Alien species</p>	<p>Some retention of established non-native mature trees such as beech may be tolerated but any regeneration must be controlled</p>	<p>There should be no patches of <i>Rhododendron</i> covering an area of greater than 1m and none should be of a size where it can flower and set seed</p> <p>Regeneration of non-native tree species will not be tolerated beyond the seedling stage.</p> <p>In the future we</p>

		may have to modify this as species such as beech <i>Fragus sylvatica</i> or sycamore <i>Acer pseudoplatanus</i> may become more prevalent with climate change.
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4.15 Conservation Objective for Feature 15: Petrifying springs with tufa formation (Cratoneuron)
(EU Habitat Code: 7220)

Vision for feature 15

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

- This feature on Eryri does not form tufa but should display a dominant cover of mosses such as *Cratoneuron communatum*, *Philonotis fontana* and *Bryum pseudotriquetrum* with frequent characteristic forbs such as *Montia fontana*, *Chrysosplenium oppositifolium* and *Saxifraga stellaris*.
- There are no significant increases in grass or rush cover

The extent of the spring vegetation is largely dictated by natural factors, chiefly hydrology. Reductions in extent could occur in response to trampling, and encroachment by rush and grass species due to nutrient enrichment.

Performance indicators for feature condition		
Attribute	Attribute rationale and other comments	Specified limits
A1. Extent of Petrifying springs with tufa formation		<i>Upper limit:</i> none – as dictated by hydro-ecological potential. <i>Lower limit:</i> mapped extent
A2. Condition of Petrifying springs with tufa formation	Based on the CSM attribute for this feature but modified.	Bryophyte lawns should make up at least 25% of the ground cover. Less than 1% of the vegetation cover should be made up of <i>Epilobium brunnescens</i> . Less than 1% of the vegetation cover should consist of <i>Agrostis stolonifera</i> or <i>Holcus lanatus</i> . Less than 10% of the vegetation should consist of graminoids and rushes. There should be <10% bare ground. Pulled up mosses and forbs should make up less than 10% of the vegetation cover.
Performance indicators for factors affecting the feature		
Factor	Factor rationale and other comments	Operational Limits
F1. Livestock grazing	Excess grazing could damage the moss cover. No limits set because levels are determined by management for other features.	<i>Upper limit:</i> None set <i>Lower limit:</i> None set

F2. Drainage	This habitat is dependent on perennial groundwater discharge; accordingly drainage is very harmful.	No drainage.
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Nb. There can be no specific management for this feature.

4.16 Conservation Objective for Feature 16: Alkaline fens
(EU Habitat Code: 7230)

Vision for feature 16

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

- The habitat consists of flushes, influenced by some base-enrichment, where brown mosses (such as *Scorpidium scorpioides*, *Cratoneuron commutatum* and *Drepanocladus revolvens*) are present. Small sedge species such as *Carex viridula*, *C. panicea*, *C. dioica* *C. pulicaris* and *Eriophorum spp* will be present and usually also *Pinguicula vulgaris*.

Performance indicators for feature condition		
Attribute	Attribute rationale and other comments	Specified limits
A1. Extent of Alkaline fens	Extent is unlikely to change but any shifts towards other habitats as a result of management for other features cannot always be avoided.	<i>Upper limit:</i> none – as dictated by hydro-ecological potential. <i>Lower limit:</i> approximate current mapped extent
A2. Condition of Alkaline fens	Based on the CSM attribute for this feature but modified.	There should be no non-native species (with the exception of <i>Epilobium brunescens</i> .) Less than 10% of the vegetation should consist of either <i>Juncus sp.</i> or <i>Molinia</i> , - There should be <10% disturbed bare ground caused by trampling (visible foot marks or hoof prints), The grassland vegetation immediately adjacent to the alkaline fens should have a sward height >5cm.
Performance indicators for factors affecting the feature		
Factor	Factor rationale and other comments	Operational Limits
F1. Livestock grazing	Heavy grazing could damage this feature but appropriate levels will be determined by management for other features	<i>Upper limit:</i> 0.15 lsu <i>Lower limit:</i> None
F2. Recreational activity	These wet flushes are susceptible to trampling damage	Any new paths should avoid these flushes
F3. Drainage	This habitat is dependent on focussed runoff and groundwater discharge; it is very sensitive to drainage.	No drainage.

4.17 Conservation Objective for Feature 17: Alpine pioneer formations of the *Caricion bicoloris-atrofuscae* (EU Habitat Code: 7240)

Vision for feature 17

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

- The feature consists of base rich flushes at high altitude which are flushed continuously with cold water.
- This habitat should have a high bryophyte cover and support arctic alpines such as *Saxifraga oppositifolia*, *S. stellaris* and *Thalictrum alpinum*. *Juncus triglumis* should be present and sedges such as *Carex viridula*.
- There should be no non-native species.
- The flowering plants should be able to flower and set seed unhindered by grazing

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of Alpine pioneer formations	The feature is limited to small pockets and is very vulnerable to climate change.	<i>Upper limit:</i> none <i>Lower limit:</i> no significant shrinkage of mapped extent
A2. Condition of Alpine pioneer formations	Based on the CSM attribute for this feature but modified.	Vegetation composition: At least three of the following species should be present with flowering shoots: <i>Carex viridula</i> , <i>Saxifraga oppositifolia</i> , <i>Thalictrum alpinum</i> , <i>Saxifraga hypnoides</i> , <i>Saxifraga stellaris</i> , or <i>Cochlearia micacaea</i> . There should be <1% New Zealand Willowherb present Physical Structure: There should be less than 10% cover of disturbed bare ground
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
F1. Livestock grazing	Grazing could damage this feature but appropriate levels will be determined by management for other montane features	<i>Upper limit:</i> none set <i>Lower limit:</i> none

Nb. There can be no specific management for this feature.

**4.18 Conservation Objective for Feature 18: Floating water plantain *Luronium natans*
(EU Habitat Code: 1831)**

Vision for feature 18

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

- *Luronium natans* occurs in Llyn Cwmffynnon as a minimum

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of Floating water plantain	Llyn Cwmffynnon is the sole location where this species has been recorded and it has not been found recently.	<i>Upper limit:</i> none <i>Lower limit:</i> presence in Llyn Cwmffynnon
A2. Condition of Floating water plantain	It is not possible to set any limits since none has been found since the SAC was notified.	
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
F1. Water quality	This is the only factor which would be likely to affect the feature on this site. Limits set for the oligotrophic lakes feature would be appropriate.	<i>Upper limit:</i> None set <i>Lower limit:</i> None set These need to be set up for the individually relevant lakes.

4.19 Conservation Objective for Feature 19: Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus*
(EU Habitat Code: 1393)

Vision for feature 19

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

- The moss is present at Cwm Afon Llafar Flush A and Flush B.
- The associated vegetation should be dominated by rushes and sedges, with <20% rush cover.
- There should be less than 10% disturbed bare ground within the flushes.

Performance indicators for feature condition		
Attribute	Attribute rationale and other comments	Specified limits
A1. Extent of Slender green feather-moss	See SAC monitoring report (Lewis 2006).	Upper limit: none
		<p><i>Lower limit:</i> At Cwm Afon Llafar:</p> <p>Within Flush A (Centred on SH 65986548): <i>H. vernicosus</i> must be frequent throughout the flush (present in >50% of 1 m radii) and <i>H. vernicosus</i> should be dominant (>50% cover) within ten 50 cm x 50 cm sample points separated by at least 1m</p> <p>And</p> <p>Within Flush B (Centred on SH 65166530): There must be at an area of at least 2m x 2m where <i>H. vernicosus</i> is dominant <u>and</u> <i>H. vernicosus</i> should be dominant (>50% cover) within a further seven 50 x 50cm sample points separated by at least 1m <u>and</u> The vegetation within Flushes A and B should be suitable for supporting <i>H.vernicosus</i></p>
A2. Condition of habitat supporting Slender green feather-moss		<p>The vegetation should be dominated by bryophytes and sedges There should be <20% rush cover There should be less than 10% disturbed bare ground</p>

<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
F1. Livestock grazing	Excessive grazing could damage this feature but appropriate levels will be determined by management for other features	<i>Upper limit:</i> none set <i>Lower limit:</i> none set

5. ASSESSMENT OF CONSERVATION STATUS AND MANAGEMENT REQUIREMENTS

This part of the document provides:

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

5.1 Conservation Status and Management Requirements of Feature 1: Siliceous alpine and boreal grasslands (EU Habitat Code: 6150)

Conservation Status of Feature 1

Status 2007 – unfavourable declining. Dwarf shrubs are very low in cover, *Racomitrium* has declined and grass cover is too high.

Restoration of this habitat is a very long term objective.

The feature occurs on the highest summits and ridges, and has existed in a degraded condition for many years. Its conservation status is known to be unfavourable.

The largest area is on the Carneddau but there are also smaller areas on the Glyderau. The combination of heavy grazing and manuring by livestock over many years, possibly exacerbated by atmospheric nitrogen deposition and human impact from trampling, has caused the decline of this feature.

Survey of the habitat on the Carneddau was undertaken by Ratcliffe in 1953 and comparison of some of the areas covered was undertaken by Turner in 1993. This indicated a marked decline in the cover of *Racomitrium* and an increase in grass cover. Further survey undertaken by CCW on Eryri leaves no doubt that the habitat is unfavourable and consequently there has been no formal SAC monitoring undertaken. Some surveillance work was undertaken by CCW on the Carneddau and on Y Garn between 1993 and 1995 during the course of the LIFE project aimed at integrating monitoring and management on Natura 2000 sites. The McCauley Institute have been conducting research on this habitat in the Carneddau and Glyderau which will help guide our understanding of the influences of grazing and nitrogen deposition impacts and the possibilities for restoration of the habitat.

Management Requirements of Feature 1

Summit heath does not require grazing for its maintenance and it needs a long period of no grazing for its recovery. At the present time sheep and ponies (on the Carneddau) are free to wander on the mountain summits. Furthermore, sheep tend to favour the well-drained mountain tops over the wet peaty habitats below. Shepherding is possible and is a component of several existing management agreements where the holdings contain, or are contiguous with, areas of montane and summit heath. This option needs further development and support. However it is difficult to monitor the success of this and it could never be totally successful in keeping stock off the summits.

This would only be successful if there were further reduction in grazing pressure across the unenclosed mountain blocks, as a whole.

Fencing out the summit vegetation would be highly controversial, mainly because the upland commons have been managed for centuries without fences and neither the farmers, landowners, the National Park Authority nor ramblers currently welcome the suggestion. Moreover erection of fencing on open land and registered common land would present considerable legal problems and would probably not be sustainable.

Many of the summits and ridges are very popular with walkers and although most will keep to paths, there is the risk of impacts on the vegetation as a result of people wandering over the habitat and also the widening of paths as a result of increased trampling from large numbers of people. This factor is not within the control of any single organisation but there is a presumption against giving consent to new races or other recreational events involving significant numbers of participants, who utilise the ridges and summits.

5.2 Conservation Status and Management Requirements of Feature 2: Alpine and Boreal Heaths (EU code 4060)

Conservation Status of Feature 2

Status 2007 is unfavourable. It is possibly declining in some areas and recovering in others. SAC monitoring in 2006 concentrated on the habitat at Pen yr Ole Wen in the Carneddau and at Y Lliwedd on Yr Wyddfa because these are the best known good and accessible stands. The habitat occurs also on the Glyderau but is known to be unfavourable, and is patchy and discontinuous elsewhere. Only the plot recorded on Yr Wyddfa reached the expected standard, while the plot on the Carneddau failed mainly because of insufficient bryophyte and lichen cover. The feature ought to be far more widespread and be contiguous with the montane heath at its upper level.

Management Requirements of Feature 2

The feature needs a long period of no grazing to recover. Heavy grazing in the past has degraded most of this habitat, destroying the moss and lichen layers and dwarf shrubs by trampling and manuring. This damage has most likely been further exacerbated by atmospheric nitrogen deposition, by burning and possibly by recreational pressure.

5.3 Conservation Status and Management Requirements of Feature 3: Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (EU code 6430)

Conservation Status of Feature 3

This habitat is unfavourable because many of the ledges are being grazed by sheep and feral goats. The habitat was monitored at key locations, Cwm Idwal and Clogwyn y Garnedd by CCW in 1998 and found to be unfavourable. Further monitoring by CCW in 2003 at Cwm Idwal was less intensive than the former round because it was evident that much of the habitat was grazed and therefore unfavourable.

Management Requirements of Feature 3

The habitat is restricted to ledges with sufficiently moist and base-enriched soils to support this vegetation. Furthermore, the habitat has been restricted by grazing sheep to ledges that are relatively inaccessible. There are many ledges which support the habitat in a degraded state where all of the characteristic plants are grazed almost to soil level and cannot flower and set seed. Feral goats have exacerbated the problem because they are very agile and can reach areas where the sheep cannot reach and it is impossible to exclude them from the ledges. They are a major problem at Cwm Idwal. For the plant populations of this habitat to recover and expand it is essential that grazing by sheep and goats is removed.

Grazing control difficult to achieve since there are no barriers to stock. Shepherding is possible but it is difficult to monitor success. Goats can only be controlled by culling.

5.4 Conservation Status and Management Requirements of Feature 4: Calcareous rocky slopes with chasmophytic vegetation (EU code 8210)

Conservation status of Feature 4

The habitat is currently unfavourable because some of it is grazed and also because a non-native species is present.

Monitoring of the calcareous rocky slopes with chasmophytic vegetation was undertaken during October 2005 and June 2006 and the monitoring sampled the calcareous chasmophytic vegetation at four locations (Ysgolion Duon, Cwm Idwal, Clogwyn y Garnedd and Cwm Glas). Cwm Glas was the only location, which fulfilled the criteria for “good quality” habitat set out in the performance indicators. The other locations failed due to the presence of non-native species (i.e. *Epilobium brunnescens*) and because the chasmophytic vegetation was showing signs of detrimental browsing from sheep and goats.

Management Requirements of Feature 4

For the plant populations of this habitat to recover and expand it is essential that grazing by sheep and goats is removed. However, grazing control is difficult to achieve since there are no barriers to stock which graze the lower altitudes. Shepherding is possible but it is difficult to monitor success. Goats can access rocky areas which are inaccessible to sheep and can only be controlled by culling.

The habitat supports rare arctic alpine plants at the southern limit of their range which are vulnerable to potential warming with climate change. These populations must be given every opportunity to thrive and expand if they are to have any chance of buffering the effects of such changes.

We have no means of controlling the non-native species *Epilobium brunnescens* and may in the future need to revise our conservation objectives in respect of this plant.

5.5 Conservation Status and Management Requirements of Feature 5: Alpine and subalpine calcareous grasslands (EU code 6170)

Conservation Status of Feature 5

The habitat was reported as unfavourable in 2005 (see SAC monitoring report). Some of the monitoring points failed because of the cover of *Epilobium brunnescens*, and some because the cover of flowering plants was insufficient to pass the threshold.

Management Requirements of Feature 5

For the plant populations of this habitat to recover and expand it is essential that grazing by sheep and goats is removed. This habitat only occurs in very small areas in Eryri. Some is on ledges naturally protected from grazing, but needs to be able to spread onto more accessible rocky ground to allow the tiny populations to expand. Management for other montane/arctic-alpine features will help this habitat.

We currently have no means of controlling the non-native species *Epilobium brunnescens* and may in the future need to revise our conservation objectives in respect of this plant. If it proves not to be damaging to the habitat, then we may tolerate it at some level.

5.6 Conservation Status and Management Requirements of Feature 6: Siliceous rocky slopes with chasmophytic vegetation (EU code 8220)

Conservation Status of Feature 6

The habitat is reported as unfavourable/ unclassified. It is a habitat which is not well defined in the NVC or in the Annex 1 habitats. This makes identification and conservation measures difficult as very large areas of Eryri could conceivably be classified under this heading.

Management Requirements of Feature 6

In various locations the habitat is may be subject to overgrazing by sheep and goats. Localised inappropriate recreational pressure can also cause problems. Better definition and further survey of this habitat is needed to allow effective monitoring and reporting and to effectively target its conservation. However in practice the grazing management for this habitat will mostly be a consequence of management for other more sensitive montane features.

5.7 Conservation Status and Management Requirements of Feature 7: Siliceous scree of the montane to snow levels (EU Habitat Code:8110)

Conservation Status of Feature 7

The habitat was reported as unfavourable in 2006 because of excessive disturbance by sheep, goats and humans.

Management Requirements of Feature 7

Scree is naturally an unstable habitat, but in various locations in Eryri scree slopes are additionally unstabilised by overgrazing by sheep of adjacent land and localised inappropriate recreational pressure, leading to increased scree mobility and visible tracks through the habitat. Careful consideration of access routes and grazing pressure in the habitat is required. The habitat can support some grazing at relatively low levels, as this helps to reduce overgrowth by scrub and bracken. However, there will be places in Eryri where the management for other features (woodland, scrub and heath for example) will result in areas of more stable scree being overgrown by trees and heath. This is acceptable as long as the main areas of higher altitude scree are maintained in good condition.

5.8 Conservation Status and Management Requirements of Feature 8: Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea* (EU Habitat Code: 3130)

Conservation Status of Feature 8

The habitat is reported as unfavourable/ recovering

Management Requirements of Feature 8

The use of lakes within the SAC for angling is very limited. Some of these lakes are also used as drinking water reservoirs. It is crucial that sudden changes in water level are avoided in addition to the introduction of fish stock. Note, not all of the water bodies within the SAC are classified as this feature. Reduction in the amount of nutrient input from sheep droppings as a result of grazing reductions for other habitats should benefit the naturally oligotrophic lakes.

5.9 Conservation Status and Management Requirements of Feature 9: North Atlantic wet heaths with *Erica tetralix* (EU Habitat Code: 4010)

Conservation Status of Feature 9

This feature is recorded as unfavourable. Though there is a large area of the habitat throughout the site, some of which is in good condition, much is in scattered relatively small stands of variable quality and condition. Not all of the habitat has been assessed because of its scattered nature on this large site, but we have sufficient data to report it as unfavourable.

Some of the habitat is the result of draining and overgrazing of blanket bog and it may be that as we try to restore these bogs, some of this wet heath could be lost.

Management Requirements of Feature 9

The quantity and extent of this habitat has been reduced due to the past or current high levels of sheep grazing in many locations. Reduced or more appropriate levels of grazing, no burning and measures to retain water on the land should all help restore and improve the condition of this habitat.

5.10 Conservation Status and Management Requirements of Feature 10: European Dry Heath (EU Habitat Code: 4030)

Conservation Status of Feature 10

This feature is recorded as unfavourable. Though there are areas of the habitat in favourable condition, we would expect a greater proportion of this and there are many areas which are clearly unfavourable.

The reasons for the unfavourable condition are varied:

Some stands show signs of overgrazing evidenced by topiarised, mat or prostrate forms of heather, or undesirable levels of grass cover.

Some stands are even-aged and may be senescent with no mixed structure.

Some heath on the steeper slopes is in good condition whereas other heath can be overgrazed or undergrazed. Generally the heath is in unfavourable condition.

Management Requirements of Feature 10

The quantity and extent of much of this habitat has been reduced by past or current high level of sheep grazing. Grazing in winter is particularly damaging to the heath in the uplands. Where heath is only a small component of a grass-heath mosaic or is in very poor condition, more specific grazing management will be needed, with a complete cessation during the winter months for a period of years. In Cwm Idwal, and elsewhere, when sheep numbers have been heavily reduced, suppressed ericoid species have become more evident in grassland/ heathland mosaics. Additionally existing stands of dry heath can become more vigorous. Generally, appropriate grazing levels will keep much of the heath in favourable condition.

In many cases, the most vigorous stands are located in situations where sheep access is difficult, e.g. steep craggy slopes where no direct management is required. However there are areas of Eryri where grazing levels have been heavily reduced resulting in tall even-aged stands which the sheep no longer penetrate. These require additional cutting and/or, burning management to restore a mixed age structure and prevent succession to scrub. Similarly where large scale burning was once carried out, cessation of this has resulted in large even-aged stands which also require this type of management to restore a mixed age structure. Such management should adhere to a heather management plan (using CCW guidelines) and any burning cycle in the uplands should normally be on a rotation of not less than 15 years.

Invasion by *Rhododendron* is an increasing threat to some heaths, and its removal and nearby seed sources at an early stage is important.

In Eryri generally, the aim is for heath to develop on some areas of overgrazed acid grassland and for condition to improve on existing stands. As this will result in an overall increase in the area and condition of this habitat, some heath can be allowed to succeed to scrub and woodland. This will allow for a more natural dynamic vegetation evolution on the site and the development of some natural treelines in which trees and scrub gradually give way, with altitude, to heath.

5.11 Conservation Status and Management Requirements of Feature 11: Blanket Bog (EU Habitat Code: 7130)

Conservation Status of Feature 11

This feature is recorded as unfavourable since much of the habitat has been subjected to past drainage, overgrazing and burning. Much is dominated by heath rush (*Juncus squarrosus*), an indicator of past or present overgrazing.

Blanket bog is scattered in Eryri and doesn't form large expanses as on the Migneint for example. However, a large number of smaller examples do exist on flatter summits/shoulders or in the valleys and these add greatly to the habitat diversity of the site. Some of these stands are of good quality habitat rich in sphagnum mosses, some are potentially good but in poor condition, while others are very heavily degraded and decisions need to be made as to which of these can be restored.

Management Requirements of Feature 11

In various locations the habitat is subject to overgrazing by sheep and has suffered from historic drainage and burning. Localised erosion can occur, especially when this habitat is crossed by access tracks. Heavy grazing reduces the dwarf shrub component, damages the sphagnum layer and encourages growth of grasses and heath rush. Blanket bog requires only very light levels of grazing and removal of stock in the winter months for maintenance of the habitat. Recovery of degraded habitat will require many years of large reductions in sheep stocking and possibly additional measures in some instances to prevent further erosion.

Burning is detrimental to blanket bog and careful attention must always be made in preparing heather management plans to avoid possible damage to this habitat.

Occasionally gorse can establish on drier areas of blanket bog and it is essential that this is removed by cutting and chemical treatment of stumps if necessary.

5.12 Conservation Status and Management Requirements of Feature 12: Depressions on peat substrates of the Rhynchosporion (EU Habitat Code: 7150)

Conservation Status of Feature 12

This feature is recorded as favourable/maintained.

Management Requirements of Feature 12

Though this habitat would be vulnerable to excessive levels of grazing and trampling, this habitat is currently in a satisfactory state. It is usually found in the wetter parts of blanket bogs and so is less likely to be overgrazed. Appropriate management for blanket bog would also benefit this habitat.

5.13 Conservation Status and Management Requirements of Feature 13: Species-rich Nardus grassland on siliceous substrates in mountain areas (EU Habitat Code 6230)

Conservation Status of Feature 13

This feature is recorded as unfavourable (see monitoring report (Lewis 2006)). The feature is mostly overgrazed resulting in a more grassy sward with fewer forbs than is expected for this habitat type. However one of the plots which failed to meet the criteria for favourability was not overgrazed at that time but had high cover of thistles. This latter area may have been affected by heavy grazing in the past.

The habitat occurs in scattered locations in Eryri, generally where there is some base rich influence from the underlying rock or with some flushing. It is generally targeted by grazing animals and so tends to be very tightly grazed with little chance for any of the herbs to flower and set seed. Grasses can therefore dominate and exclude or reduce the proportion of herbs.

Management Requirements of Feature 13

To enhance the structure and extent of this habitat, the sheep grazing levels require reducing. Some grazing is needed to retain the open grassland (except where the objective is succession to tall-herb vegetation), but this does need to be reduced significantly as even low numbers of sheep tend to focus onto these palatable grasslands. They are dependent on subsurface or flushed conditions and so the area cannot be extended much, but it is important to improve the structure to allow the herbs to grow, flower and form a significant proportion of the sward.

5.14 Conservation Status and Management Requirements of Feature 14: Old sessile oakwoods with Ilex and Blechnum (EU Habitat Code: 91A0)

Conservation Status of Feature 14

This feature is recorded as unfavourable recovering.

The majority of this habitat is located within Nant Gwynant, though there are smaller areas on the Conwy Valley edge, eg. at Cwm Crafnant interspersed with ash woodland. It also occurs in small stands, some of which are slowly re-establishing, in areas such as the Nant Ffrancon, Nant Peris and Dyffryn Mymbyr.

Management Requirements of Feature 14

Most of the woodland has been damaged by grazing stock which have reduced the shrub layers and prevented regeneration from occurring. However much has in recent years has been fenced off to exclude sheep and allow regeneration to occur. Sheep grazing is excluded from much of the woodland in Nant Gwynant, but regeneration is still compromised by goat browsing. This is a difficult problem since fencing can rarely deter goats which damage and destroy saplings and young trees.

Rhododendron invasion is still a problem despite a long period of control and it is important to continue control measures to remove seed sources in addition to invading bushes. There are still problems arising from phytotoxic poisoning of land formerly occupied by Rhododendron and from seedling regeneration.

If small-scale forestry activity eventually takes place (e.g. under the Better Woodland for Wales scheme) this needs to be in the context of glade creation and include the retention of dead wood. The expansion of woodland is an important aspect of the future management of the Eryri SAC. The small existing remnants may form the core of current management efforts to improve their condition, but there is a need to expand these sideways and upwards to replace much of the woodland lost in the recent past. 'Natural' treelines and more valley side woodlands and scrub can be achieved in the long term by phased grazing exclusion on a cyclical basis to encourage pulses of recruitment.

5.15 Conservation Status and Management Requirements of Feature 15: Petrifying springs with tufa formation (Cratoneuron) (EU Habitat Code: 7220)

Conservation Status of Feature 15

This feature is recorded as unfavourable/ declining.

This feature is represented by a number of small areas scattered across the site. There is a particular concentration in the vicinity of Cwm Idwal and on Gwaen Gynfi.

Management Requirements of Feature 15

Because this habitat occurs in a number of very small patches, they are very vulnerable to single localised adverse event. Like many other habitats they would benefit from a reduction in grazing pressure and so good general management for heaths and mires should help improve their condition. It

is likely that stock preferentially graze this habitat because its mineral content will be higher than that of the surrounding vegetation.

5.16 Conservation Status and Management Requirements of Feature 16: Alkaline fens (EU Habitat Code: 7230)

Conservation Status of Feature 16

This feature is recorded as favourable/ maintained. It is found on Yr Wyddfa close to the Miners Track and in Cwm Beudy Mawr. On the Glyderiau it occurs in Cwm Idwal on slopes near Y Garn, also in Cwm Cneifio. Alkaline Fens are scattered in the Carneddau, along the Afon Caseg, in Cwm Eigiau, along Afon Anafon and below Ysgolion Duon.

Management Requirements of Feature 16

The habitat is holding its own at present, though it would be vulnerable to inappropriate access routes or increased grazing pressure. Good general habitat management should be appropriate for this feature. Management cannot target this feature specifically.

5.17 Conservation Status and Management Requirements of Feature 17: Alpine pioneer formations of the *Caricion bicoloris-atrofuscae* (EU Habitat Code: 7240)

Conservation Status of Feature 17

This feature is recorded as unfavourable/ declined. The 'Alpine Pioneer formations of *Caricion bicoloris-atrofuscae*' cover only a very small area and is dispersed across the site often in an accessible areas. However, there are a number of accessible stands located on Ysgolion Duon within the Carneddau massif

Management Requirements of Feature 17

Because of the scale of this habitat (scattered in small patches) they are very vulnerable to livestock and human trampling. The monitored habitat failed in 2003 because of sheep trampling. Reduction in grazing levels would benefit this habitat. This habitat is likely to be very vulnerable to climate change.

5.18 Conservation Status and Management Requirements of Feature 18: Floating water plantain *Luronium natans* (EU Habitat Code: 1831)

Conservation Status of Feature 18

This feature has not been fully assessed. It is still unclear which lakes contain this species because it can be a very difficult species to locate in deep water. The only records are from Llyn Idwal in the early 20th century, and more recently from Llyn Cwmffynnon. Survey has failed to relocate it from Llyn Idwal in recent years and a survey of Llyn Cwm Ffynnon in September 2006 was inconclusive. It is possibly present in some of the other Eryri lakes where conditions appear to be suitable.

Management Requirements of Feature 18

A comprehensive survey for this species is required.

5.19 Conservation Status and Management Requirements of Feature 19: Slender green feather-moss *Drepanocladus (Hamatocaulis) vernicosus* (EU Habitat Code: 1393)

Conservation Status of Feature 19

This feature is recorded as favourable/ maintained.

Management Requirements of Feature 19

Little is known about the population dynamics or the ecological requirements of this bryophyte. Because of the scale of the habitat in which this moss occurs i.e. scattered in flushes) it may be

vulnerable to excessive livestock trampling. However the known population is located on Llanllechid Common, an area which has very high levels of sheep grazing. It is unlikely that reduction in grazing levels would be detrimental to this feature but only further study could ascertain its management needs.

It is unlikely that management could be targeted specifically at this species on this large open common land.

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?
001	001354	Aber and Llanfairfechan Commons (A)	Continue gorse management to ensure that sufficient open habitat continues in the mountain gate area for the chough	Yes
2	001355	Aber and Llanfairfechan Common (B)	<p>These commons have a management agreement under the SNPA's Rhaglen Tir Eryri scheme. The priority for this unit is the summit heath and the montane heaths which should slowly recover under the reduced grazing pressure, provided that sheep from the neighbouring Llanllechid common could be controlled.</p> <p>Dry heath, wet heath and blanket bog should also improve. The unit is not physically separated from Aber and Llanfairfechan Common (A) in which chough are prioritised and which requires heavy grazing to keep the vegetation short and open. This may appear to be incompatible since the two units need different grazing intensities, but is working in practice because sheep continue to graze the latter unit much more heavily than the rest of the common.</p>	Yes
3	001356	Llanllechid Common	Severe overgrazing is a big issue both historic and current. The WAG undertake overgrazing assessments. CCW and the SNPA under the Rhaglen Tir Eryri have negotiated a management agreement but there are issues to be addressed	Yes
4	001357	Blaenddol (B)	This holding extends to the Carneddau summit ridge with its degraded summit heath. There is a considerable expanse of blanket bog, much of which has been drained in the past. It is not known if this could be effectively restored to its former state.	Yes
5	001359	Blaenddol (C)	This holding extends to the Carneddau summit ridge with its degraded summit heath. There is a considerable expanse of blanket bog, much of which has been drained in the past. It is not known if this could be effectively restored to its former state. There is a small amount of tall herb ledge vegetation above Llyn Dulyn which would benefit from grazing exclusion but it is practically impossible to fence it out.	Yes
6	001360	Blaenddol (A)	No known issues	No

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
7	001361	Hafod y Garreg	Has a S15 agreement. Some gorse management needs to be undertaken to allow better dry heath to establish. A small amount of 'humid heath' is present on the holding which appeared to respond well to burning. Woodland expansion along the river corridor would be desirable if an opportunity arises in the future to achieve this. Ideally cattle would be preferable to sheep grazing because of the bracken and gorse, but tending to them on this site would be difficult.	Yes
8	001362	Rowlyn Uchaf	In TG. No known issues	No
9	001363	Caerhun	Currently in TG. This is a large holding with a large expanse of dry heath in good condition. A small parcel near the Afon Porthlwyd is in the TG heath reversion option which does not appear to be working well as the parcel appeared to be very grassy when visited in 2007 and some change to the grazing pattern was requested.	No
010	001364	Rowlyn Isaf	The unit is in TG and has a S15 agreement to graze an area with cattle and also to cut areas of heath agreed with CCW. The cattle grazing is restoring a molinia dominated area to wet heath.	No
11	001365	Pant Meurig	This Unit is considered to be under appropriate conservation management.	No
12	001366	Tanrallt A	In TG. No known issues	No
13	001367	Tanrallt (B)	In TG. No known issues	No
14	001368	Llwydfaen A	Summit heath is heavily degraded as a result of excessive grazing and recreational pressure and requires a mechanism for restoration.	Yes
15	001369	Llwydfaen B	In TG. No known issues	No
16	001370	Cae Rhedyn	In TG. No known issues	No
17	001371	Carreg y Ffordd	No information or known issues	No
18	001372	Cae Fadog	Summit and montane heaths have been heavily degraded by excessive grazing and probably recreational pressure and need a mechanism for restoration Efforts are being made to reduce stock on the mountain but there is presently no effective way of keeping sheep off the summits as there are no physical barriers Clearing all stock from the mountain is not possible or desirable. Fencing out the summits is the only way that stock can be excluded from the summits to allow the summit and montane heath to recover, but this is highly controversial, especially with farmers and walkers. In TG A decision is needed on how to protect these montane habitats from further damage and destruction	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
19	001373	Farchwel (A)	Holding is in TG. The holding includes Creigiau Gleision with its tall herb vegetation and has very good heath and blanket bog. The heath used to be widely burned and some is now rather even-aged. It needs extra management to recreate a better age structure and this should be considered as a project along with neighbouring holdings. The unit goes up to the summit of Pen Llythrig y Wrach which hosts summit heath.	Yes
20	001374	Farchwel (B)	No issues known and unit is in TG.	No
21	001375	Cefn Cyfarwydd	Good quality heath on the unit but needs additional management to diversify the age structure. A rotational cutting/burning plan has been produced by CCW but has not yet been implemented. In TG	Yes
22	001376	Pen y Bryn	Heath exists in a mosaic with grassland and the cover and structure could be improved with better management to even out the grazing pressure. However this is not a big priority considered in context with the rest of the SAC	No
23	001377	Cae Crwn	Large expanse of good heath and blanket bog are now even-aged and very mature. Stock are not penetrating the habitat at the higher levels and some additional management is needed to produce a better age structure and reduce fire risk. In TG	Yes
24	001378	Bryn Dansi	Some of the heath may be becoming even-aged and very mature, though this is acceptable in the high rocky areas, while other areas are heavily grazed. Some additional management may be needed to produce a better age structure which will result in more even grazing pressure. Woodland expansion and scrub are to be welcomed but a means of reducing fire risk may be needed. In TG	Yes
25	001389	Clogwyn yr Eryr	Some of the heath may be becoming even-aged and very mature, though this is acceptable in the high rocky areas, while other areas are heavily grazed. Some additional management may be needed to produce a better age structure which will result in more even grazing pressure. Woodland expansion and scrub are to be welcomed but a means of reducing fire risk may be needed. In TG	Yes
26	001390	Cwm Crafnant NNR upper	Sheep sometimes gain entrance to the woodland - continued surveillance of the stock exclusion fence is needed. In TG	No
27	001392	Cwm Crafnant NNR lower	In TG. Unit is grazed with the rest of the mountain. Some heath management higher upslope on neighbouring holdings may be considered to reduce the grazing pressure lower down in the valley. (see Bryn Dansi)	No
28	001394	Maes Mawr (A)	In TG and no known issues	No
29	001395	Maes Mawr (B)	In TG and no known issues	No
30	001396	Cae Crwn valley floor	In TG and no known issues	No

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
31	001397	Cornel	Site is cattle grazed and mineral licks were seen in April 2007. These probably are not an issue but CCW needs to check in case there are signs of any excess poaching when visiting the site.	No
32	001398	Hendre	no known issues	No
33	001399	Forestry Commission Crafnant	Conifers seed into this unit and require regular removal. Also there is a threat of invasive plants such as rosebay willowherb establishing in any bare ground and these would need removal	Yes
34	001400	Crafnant shore east of Cornel	No known issues	No
35	001401	Dol Llech	In TG. No known issues	No
36	001402	Cwmlanerch	In TG. There has been recent erosion of the hillside following heavy winter rain but the site has not been inspected since the event. This needs investigating	No
37	001403	Tal y Braich Isaf	Extensive ditching work undertaken in the past has resulted in erosion and damage to blanket bog and wet heath. This holding extends to the Carneddau summit ridge with its degraded summit heath	Yes
38	001404	Bryn Ddraenan (Bodesi)	This holding extends to the Carneddau summit ridge with its degraded summit heath	Yes
40	001405	Braich Ty Du	This holding extends to the Carneddau summit ridge with its degraded summit heath. It is adjacent to Llanllechid common and associated grazing pressure	Yes
39	001406	Tyn y Maes	In TG. Site has been overgrazed in the past and it is expected that heath and scrub will expand under a lighter grazing regime	No
41	001407	Dolawen valley floor (A)	In TG. No known issues	No
42	001408	Dolawen valley floor (B)	in TG. No known issues	No
43	001409	Tyn y Maes valley floor	in TG. No known issues	No
44	001410	Ogwen woodland	No known issues	No
45	001411	Maes Caradog valley floor	In TG. No known issues	No
46	001412	Pentre valley floor	In TG. No known issues	No
47	001413	Braich Ty Du valley floor	In TG. This unit has been heavily improved and has no SAC features.	No
48	001414	Cefn Coed Isa (Ogwen valley floor)	In TG. No known issues	No
49	001415	Blaen y Nant valley floor	Ditches are silting up and causing a hazard to grazing sheep. Heavier stock would be more suitable for this marshy habitat with wet heath and blanket bog, but fencing is needed to prevent them from trashing the river banks.	Yes
50	001416	Dolawen	In TG. This unit has montane heath with a good population of Salix herbacea. It is important that grazing does not damage this habitat	No

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
51	001417	Maes Caradog	This unit has been heavily grazed in the past. Now in TG	No
52	001418	Pentre	In TG. No known current issues but montane heath must be protected from damage	No
53	001419	Cwm Idwal	Stock are excluded from this NNR allowing recovery of dry and wet heath and blanket bog. Goats are still a problem which prevent regeneration of tall herb ledges and threaten chasmophytic vegetation.	Yes
54	001420	Blaen y Nant	In TG. No known issues	No
55	001421	Gwern Gof Uchaf	In TG. No known issues	No
56	001422	Gwern Gof Isaf	In TG. No known issues	No
57	001423	Royal (ex Garth)	In TG. This holding has not been visited by CCW staff since notification of the SSSI and SAC because of a longstanding legal argument over future stocking rates. This has been resolved and the site must be monitored in the next monitoring round.	No
58	001424	Dyffryn Mymbyr	Woodland restoration is being implemented at the eastern end of the holding. CCW's intention is to expand this as opportunities arise	No
59	001425	Gwastadanas (Glyderau)	Both wet and dry heath are restricted in extent and quality on this unit because of heavy grazing	Yes
60	001426	Cae Perthi	Grazing levels are high for the montane and submontane heaths. Sheep regularly trespass onto Cwm Idwal	Yes
61	001427	Gwastadnant	no information and no known issues	No
62	001428	Hafod Gynfor (Glyderau)	In TG. No known issues	No
63	001429	Hafod Lydan	No known issues	No
64	001430	fields west of Cae Perthi	No known issues	No
65	001431	Maes Caradog (B) Marchlyn	Heavily grazed in the past. Now in TG	No
66	001432	Elidir Fach	An important holding because of the montane heath with abundant Salix herbacea. Grazing levels are not known and it could be overgrazed	Yes
67	001433	Elidir Fawr	This unit has been heavily grazed in past but is now under a management agreement (SNPA's Rhaglen Tir Eryri scheme)	No
68	001434	Dinorwig West	No known issues	No
69	001435	Dinorwig East	No known issues	No
70	001436	Gwaen Gynfi	Common land. Supports good blanket bog and wet heath though some has been burnt in the past. The unit could benefit from better management control but an agreement for common land is resource intensive and there are higher priorities elsewhere on the SAC.	No
71	001437	Moel y Ci	In TG. There is positive ongoing liaison between the owners/tenants and CCW over heath management. The site has been regularly burned in the past and gorse on the lower slopes may need suitable management to avoid further spread.	No

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
72	001438	Drysgol Fawr	No significant known issues. Owner burns small numbers of gorse bushes, as do other farmers in this area, otherwise it forms dense thickets. Has expressed interest in a S15 agreement.	No
73	001439	Moel Rhiwen	This unit would benefit from changes in heathland management. The owner has regularly undertaken burning and CCW has consented to small scale controlled burning recently.	No
74	001440	Pen y Bwlch ffridd	no known issues	No
75	001441	Nant Peris		No
76	001442	Hafod Gynfor (Wyddfa)	In TG. No known issues	No
77	001443	Cwm Glas Mawr a Fach	In TG. No known issues	No
78	001444	Cwm Beudy Mawr	There are a lot of trespassing sheep on this unit. This problem has to be addressed with the other holding concerned and is highlighted as an issue under that entry	No
79	001445	Hafodyt	No major issues in relation to the more valuable montane vegetation, but there would be some benefit from some grazing reduction lower down. The status of the Euphrasia cambrica population here should be assessed since it appeared to be very hard grazed when last seen, though stock may preferentially graze this particular area. (This is an issue for the SSSI)	No
80	001446	Snowdon railway	No known issues and no SAC features are thought to be present	No
81	001452	Moel Cynghorion	In TG and no known issues	No
82	001453	Bron Fedw Isaf	no known issues	No
83	001454	Bron Fedw Uchaf	High sheep numbers and it is thought that these trespass onto the NNR	Yes
84	001455	Clogwyn y Gwin	In TG and no known issues	No
85	001457	Ffridd Uchaf	In TG and no known issues	No
86	001466	Bryncroes	In TG and no known issues	No
87	001467	Gwastadanas Wyddfa	High sheep numbers	Yes
88	001484	Hafod y Llan (mountain)	no known issues	No
89	001485	Hafod y Llan (woodland)	no known issues	No
90	001486	Hafod Rhisgl	In TG. No known issues	No
91	001494	Hafod y Porth	In TG. No known issues	No
92	001499	Llyn Llydaw	Not thought to support the SAC feature. This lake is a reservoir with severe drawdown impacts	No
93	001500	Llyn Glaslyn	Lake does not support the SAC feature. It has been impacted by mining pollution and is an acidification monitoring site. EA WFD.	No
94	001501	Llyn Nadroedd	No information available	No
95	001502	Llyn Coch	Supports the SAC habitat. A small and shallow lake but has good habitat, monitored in 2004	No
96	001503	Llyn Teyrn	Lake supports the SAC feature. No known issues	No
97	001504	Llyn Glas	No information available	No

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
98	001505	Llyn Cwm Glas	This lake supports the SAC feature. No information available	No
99	001506	Llyn Cwm Glas Bach	Small peaty lake, does not support the SAC feature	No
100	001507	Llyn Ffynnon y Gwas	It is not known if this reservoir supports the olig-meso lake SAC feature - no data available	No
101	001508	Llyn Du'r Arddu	This lake supports the olig-meso lake SAC feature - no data available and no known issues	No
102	001509	Llyn Cwmffynnon	This supports the oligotrophic and mesotrophic lakes SAC feature and also Luronium natans, though this plant was not found in recent monitoring visits. It is an EA WFD acidification operational monitoring site.	No
103	001510	Llyn Ffynnon Llugwy	We have no data for this reservoir and do not know if it supports the olig-meso lake SAC feature	No
104	001511	Llyn Clyd	We have no data for this lake and do not know if it supports the olig-meso lake SAC feature. A rare water beetle has been recorded here	No
105	001512	Llyn y Cwn	Supports the olig-meso lake SAC feature but no data available	No
106	001513	Llyn Bochlwyd	Supports the olig-meso lake SAC feature but no data available. Some acidification has occurred	No
107	001514	Llyn Idwal	A very good quality oligo-meso lake with very high species diversity. It was monitored in 2004-5 and is an EA WFD surveillance site. Spectacular sponge growths filmed by Paul Kay in 2007	No
108	001515	Llyn Marchlyn Mawr	This is the reservoir which powers the Dinorwig 'Electric Mountain' power scheme. It has a big drawdown zone and does not support the olig-meso lake SAC feature	No
109	001516	Llyn Marchlyn Bach	No data. Unlikely to support the SAC olig-meso lake feature	No
110	001517	Llyn Ffynnon Lloer	no data and not known if this lake supports the olig-meso lake SAC feature	No
111	001518	Llyn Coedty	This is a reservoir supplying HEP. It does not support the the olig-meso lake SAC feature, but interesting plants (<i>Juncus filiformis</i> and unusual bryophytes) have been recorded from its margins. It needs occasional se-silting. Neighbouring woodland seems to support a good bird fauna and operations should avoid disturbance to nesting birds.	No
112	001519	Llyn Ogwen	Supports the oligotrophic to mesotrophic lakes SAC feature. Has been acidified to some extent	No
113	001520	Llyn Eigiau	Reservoir supplying HEP. It is not thought to support the olig-meso lake SAC feature	No
114	001521	Llyn Cowlyd	Reservoir supplying HEP. It is not thought to support the olig-meso lake SAC feature	No
115	001522	Llyn Anafon	Lake level is repeatedly being dropped because of fears of dam safety. This is damaging the oligotrophic lake vegetation (SAC feature) and threatens the integrity of the lake	Yes
116	001523	Llyn Melynllyn	no data and not known if this reservoir lake supports the olig-meso lake SAC feature	No
117	001524	Llyn Dulyn	no data and not known if this lake supports the olig-meso lake SAC feature	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** as one of the following²:

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

Conservation management

Acts or undertaking of all kinds, including but not necessarily limited to **actions**, taken with the aim of achieving the **conservation objectives** of a site. Conservation management includes the taking of statutory and non-statutory measures, it can include the acts of any party and it

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

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**.³

Feature

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

Integrity

See **site integrity**

Key Feature

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

Management Plan

The full expression of a designated site’s legal status, **vision**, **features**, **conservation**

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

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**.

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