

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

**CORE MANAGEMENT PLAN  
INCLUDING CONSERVATION OBJECTIVES**

**FOR**

**Corsydd Môn/ Anglesey Fens SAC**

**Corsydd Môn a Llyn/ Anglesey and Llyn Fens Ramsar site ( Anglesey sites only)**

Including:

Cors Erddreiniog SSSI  
Cors Goch SSSI  
Cors Bodeilio SSSI  
Cors y Farl SSSI  
Gwenfro Rhos y Gad SSSI  
Waun Eurad SSSI  
Caeau Talwrn SSSI

**Version: 1**

**Date: April 2008**

**Approved by: Mike Willis**



# CONTENTS

## **Preface: Purpose of this document**

### **1. Vision for the Site**

### **2. Site Description**

- 2.1 Area and Designations Covered by this Plan
- 2.2 Outline Description
- 2.3 Outline of Past and Current Management
- 2.4 Management Units

### **3. The Special Features**

- 3.1 Confirmation of Special Features
- 3.2 Special Features and Management Units

### **4. Conservation Objectives**

#### Background to Conservation Objectives

- 4.1 Conservation Objective for Feature 1: Calcareous fens (EU habitat code 7120)
- 4.2 Conservation Objective for Feature 2: Alkaline fens (EU habitat code 7230)
- 4.3 Hard oligo-mesotrophic waters (EU habitat code 7230)
- 4.4 Northern Atlantic wet heaths (EU habitat code 7230)
- 4.5 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)
- 4.6 European dry heaths
- 4.7 *Vertigo geyeri*
- 4.8 *Coenagrion mercuriale*
- 4.9 *Euphydryas (Eurodryas, Hypodryas) aurinia*
- 4.10 *Triturus cristatus*
- 4.11 *Lutra lutra*
- 4.12 Neutral grassland
- 4.13 Calcareous grassland
- 4.14 Marshy grassland
- 4.15 Vascular plant assemblage
- 4.16 *Gentiana pneumonanthe*
- 4.17 *Antennaria dioica*
- 4.18 *Potamogeton coloratus*
- 4.19 *Taraxacum palustre*
- 4.20 *Microglossum olivaceum*
- 4.21 *Ophrys insectifera* (fly orchid)
- 4.22 Stonewort assemblage
- 4.23 *Nitella tenuissima*
- 4.24 Peatland invertebrate assemblage
- 4.25 *Stratiomys chamaeleon* (a soldier fly)
- 4.26 *Limnephilus tauricus* (a caddis fly)
- 4.27 *Hirudo medicinalis* (medicinal leech)
- 4.28 Odonata assemblage
- 4.29 *Ischnura pumilio*
- 4.30 *Arvicola terrestris* Water vole

### **5. Assessment of Conservation Status and Management Requirements:**

- 5.1 Conservation Status and Management Requirements of Feature 1: Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae (EU habitat code 7120)

- 5.2 Conservation Status and Management Requirements of Feature 2 Alkaline fens (EU habitat code 7230)
- 5.3 Conservation Status and Management Requirements of Feature 3: Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.
- 5.4 Conservation Status and Management Requirements of Feature 4: Northern Atlantic wet heaths with *Erica tetralix*
- 5.5 Conservation Status and Management Requirements of Feature 5: *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)
- 5.6 Conservation Status and Management Requirements of Feature 6: European dry heaths
- 5.7 Conservation Status and Management Requirements of Feature 7: *Vertigo geyeri*
- 5.8 Conservation Status and Management Requirements of Feature 8: *Coenagrion mercuriale*
- 5.9 Conservation Status and Management Requirements of Feature 9: *Euphydryas* (*Eurodryas*, *Hypodryas*) *aurinia*
- 5.10 Conservation Status and Management Requirements of Feature 10: *Triturus cristatus*
- 5.11 Conservation Status and Management Requirements of Feature 11: *Lutra lutra*
- 5.12 Conservation Status and Management Requirements of Feature 12: Neutral grassland
- 5.13 Conservation Status and Management Requirements of Feature 13: Calcareous grassland
- 5.14 Conservation Status and Management Requirements of Feature 14: Marshy grassland
- 5.15 Conservation Status and Management Requirements of Feature 15: Vascular plant assemblage
- 5.16 Conservation Status and Management Requirements of Feature 16: *Gentiana pneumonanthe*
- 5.17 Conservation Status and Management Requirements of Feature 17: *Antennaria dioica*
- 5.18 Conservation Status and Management Requirements of Feature 18: *Potamogeton coloratus*
- 5.19 Conservation Status and Management Requirements of Feature 19: *Taraxacum palustre*
- 5.20 Conservation Status and Management Requirements of Feature 20: *Microglossum olivaceum*
- 5.21 Conservation Status and Management Requirements of Feature 21: *Ophrys insectifera* (fly orchid)
- 5.22 Conservation Status and Management Requirements of Feature 22: Stonewort assemblage
- 5.23 Conservation Status and Management Requirements of Feature 23: *Nitella tenuissima*
- 5.24 Conservation Status and Management Requirements of Feature 24: Peatland invertebrate assemblage
- 5.25 Conservation Status and Management Requirements of Feature 25: *Stratiomys chamaeleon* (soldier fly)
- 5.26 Conservation Status and Management Requirements of Feature 26: *Limnephilus tauricus* (caddis fly)
- 5.27 Conservation Status and Management Requirements of Feature 27: *Hirudo medicinalis*
- 5.28 Conservation Status and Management Requirements of Feature 28: Odonata assemblage
- 5.29 Conservation Status and Management Requirements of Feature 29: *Ischnura pumilio*
- 5.30 Conservation Status and Management Requirements of Feature 30: *Arvicola terrestris* Water vole

## 6. Action Plan: Summary

**7. Glossary**

**8. References and Annexes**

## **PREFACE**

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

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

## 1. VISION FOR THE SITE

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

Cors Erddreiniog:

At least 70% of the site should be wetland. In this we would expect to see a range of different plant communities characteristic of low fertility wetland soils, and a range of different structures and species diversity characteristic of appropriate grazing. The main elements of this vegetation would include calcareous fen composed of great fen sedge with a range of associated species including bog bean, blunt-flowered rush, slender sedge, bog myrtle and cross-leaved heath, and alkaline fen characterised by black bog rush and blunt flowered rush, areas of lesser tussock sedge and common reed, and mosses typical of these conditions including sphagnum and 'brown mosses'. Purple moor grass should be present but should not be dominant over large areas. Patches of willow and birch scrub should remain but should be in dispersed clumps and not be permitted to exceed 10 % of the wetland area. Heathland, with heather, cross-leaved heath and western gorse, should cover at least 7% of the site. Within the heath there should be areas of differing ages and therefore different structure and height. Areas of bare ground should also occur in the heathland to allow the marsh gentian, pale heath violet and petty whin to flourish. At least 8% of the site should comprise species-rich grassland with plants such as ragged robin, common spotted orchid, frog orchid, moonwort (a primitive fern) and yellow rattle. Hazel woodland should cover much of the eastern escarpment above the spring line. The mixed woodland in the centre of the site should be managed to promote indigenous tree species.

The site should contain a mosaic of water bodies that support a rich diversity of rare and less common plants and animals. The largest of these is Llyn yr Wyth Eidion, a glacial kettle-hole lake with clear, nutrient-poor water supporting carpets of stoneworts overtopped by a canopy of pondweeds and waterlilies. Tens of smaller permanent and temporary water bodies at different successional stages pepper the landscape, and these provide a diverse range of habitat for rare aquatic plants including the fen pondweed *Potamogeton coloratus*, tassel stonewort *Tolypella glomerata*, and the tiny *Nitella tenuissima*. Rare animals include Great Crested Newt, a wide range of dragonflies including the scarce blue-tailed damselfly and water vole. The site also supports regionally uncommon lowland species such as ten-spined stickleback *Pungitius pungitius*, least bur-reed *Sparganium natans*, and marestalk *Hippuris vulgaris*.

The site should also support otters, and a rich variety of invertebrates including southern damselflies, Geyer's whorl snail and the marsh fritillary butterfly. Lapwing, snipe and curlew should nest here with hen and marsh harrier over-wintering and the latter breeding.

All hydrological systems should be intact and there should be no point source inputs of nutrients and a range of different structures and species diversity characteristic of appropriate grazing.

Cors Goch:

The site should continue to have at least 25 ha of swamp and "open" fen (largely without scrub or tree cover), characterised in part by great fen- sedge and elsewhere by mixtures of black bog-rush and blunt-flowered rush, or stands of bottle sedge and slender sedge with brown mosses in a range of different structures and species diversity characteristic of appropriate grazing. Small patches of bare peat and open water within the fen will be encouraged for the benefit of medicinal leeches and stoneworts. Patches of willow and birch scrub can be tolerated but should not exceed 10% of the fen area. Areas of heathland, characterised by heather and western gorse should be maintained with a diverse structure, including between 10% and 20% of bare ground to permit pale heath violet to thrive. The calcareous grassland, characterised by green winged orchid, should be maintained at a minimum of 0.2 ha. Llyn Cadarn, a small kettle-hole lake, is entirely fringed by floating fen, then by a narrow belt of white and yellow water-lilies. The lake waters should be clear and the lake bed covered by a dense sward of stoneworts, overtopped by a thin canopy of pondweeds. The site will provide habitat for breeding great crested newts and a rich assemblage of invertebrates including dragonflies, marsh fritillary and medicinal leeches. All hydrological systems should be intact and there should be no point source inputs of nutrient.

#### Gwenfro a Rhos y Gad

Approximately 95% of the site should support wetland vegetation of which at least 80% should be fen in a range of different structures and species diversity characteristic of appropriate grazing and the remainder swamp. Alkaline fen will be restored to occupy its full potential range at the site. Existing areas of alkaline fen will continue to be dominated by open swards of black bog rush supporting small sedges and brown mosses. All 3 nationally rare plant species (narrow-leaved marsh-orchid, fen pondweed and marsh dandelion) will continue to be present in the fen. The water-table should be at or near the ground surface throughout the SSSI throughout the year. Scrub should cover no more than 20 % of the site. Medicinal leech should be present. All hydrological systems should be intact and there should be no point source inputs of nutrients in a range of different structures and species diversity characteristic of appropriate grazing.

#### Cors Bodeilio:

The site will continue to have at least 47 ha of swamp and “open” fen (largely without scrub or tree cover), characterised in part by great fen- sedge and elsewhere by mixtures of black bog-rush and blunt-flowered rush, or stands of bottle sedge and slender sedge with brown mosses in a range of different structures and species diversity maintained by appropriate grazing. Numerous pools of open water within the fen will be encouraged for the benefit of invertebrates, particularly medicinal leeches and the rich assemblage of stoneworts. Patches of willow and birch scrub will be tolerated but should not exceed 10% of the fen area. The fields at Ynys in the centre of the site should develop an increasing proportion of semi-natural grassland species such as crested dogs-tail and knapweed. The stream running through the centre of the site should retain its native plant communities and present channel and flow character; it should not be deepened further and should be unpolluted. The site should support a rich variety of invertebrates including variable damselflies and medicinal leech. Lapwing, snipe, curlew, barn owl and skylark should nest here with short-eared owl, hen and marsh harrier overwintering and the latter breeding. All hydrological systems should be intact and there should be no point source inputs of nutrients.

#### Cors y Farl:

At least 85% of the site should be wetland. In this we would expect to see a range of different plant communities characteristic of low fertility wetland soils – the main elements of this vegetation should include great fen sedge, mixtures of black bog rush and blunt flowered rush, and common reed in a range of different structures and species diversity maintained by appropriate grazing. Water levels and quality should be maintained to support these communities. Patches of grey willow should remain and a few ash trees in the periphery but in total should not be permitted to exceed 15% of the wetland area. All hydrological systems should be intact and there should be no point source inputs of nutrients

#### Caeau Talwrn:

The site should continue to comprise a complex of small fields supporting species-rich grassland with the grasses common bent, crested dog's-tail and red fescue amongst the most prominent. A wide range of flowering plants such as black knapweed, autumn hawkbit, common bird's-foot trefoil and red clover should be present. Hedgerows should be stockproof, dense and bushy, but should not spread into the field. Gorse and other scrub should be scattered and occupy no more than 10% of the area in total.

In the east of the site the large open area should be a mosaic of marshy grassland (with purple moor-grass or rushes) and dry grassland (with crested dogs-tail and common bent). Adder's tongue fern should occur in the dry grassland.

In other parts of the site grassland should merge into alkaline fen wetland, where plants such as sedges, rushes or meadowsweet become more abundant in a range of different structures and species diversity characteristic of appropriate grazing. Where the water supply is rich in lime, black bog-rush and blunt-flowered rush should be widespread, with fragrant orchid and marsh helleborine. In other wet areas greater bird'-foot trefoil, angelica and ragged robin may be more frequent. Dry banks and hedgerows should exhibit a spring display of blue columbine flowers. All hydrological systems should be intact and there should be no point source inputs of nutrients.

Waun Eurad:

Waun Eurad should support extensive areas of alkaline fen with small pools surrounded by tufa encrusted vegetation. Black bog-rush and fine-leaved sedges should be widespread on the site and uncommon species such as marsh orchids and grass of Parnassus all continue to grow here. There should be a plentiful supply of unpolluted water to feed the springs and thus the whole site.

Uncommon animal species such as great crested newts, the soldier fly *Stratiomys chamaeleon* and Geyer's whorl snail should continue to live on site.

The site has dense boundary hedges to north and east and patches of scrub extend from these into the site adding habitat diversity. However, trees and scrub should occupy no more than 25% of the total area of the site. All hydrological systems should be intact and there should be no point source inputs of nutrients.

The component sites of the SAC should sit within appropriately managed water catchments.

Opportunities for restoring lost habitat linkages, corridors and stepping stones for species migration between sites will be sought and where possible exploited. Nutrient inwash to sites will be reduced or prevented through management agreements and appropriate management of buffer zones. This vision will ensure the SAC delivers a range of ecosystem goods and services to the wider community and environment as a whole.



## **2. SITE DESCRIPTION**

### **2.1 Area and Designations Covered by this Plan**

Grid reference(s):

Corsydd Mon SA: SH470820

Including: Cors Erddreiniog, Cors Goch, Cors Bodeilio, Cors y Farl, Gwenfro Rhos y Gad Waun Eurad, Caeau Talwrn, SSSIs

Unitary authority: Isle of Anglesey / Ynys Môn

Area (hectares): 467.19ha

Designations covered: This plan includes sites included within the Corsydd Môn / Anglesey Fens SAC (comprising all of Cors Erddreiniog, Cors Goch, Cors Bodeilio, Cors y Farl, Gwenfro Rhos y Gad, Waun Eurad and part of Caeau Talwrn) SSSIs. That part of Caeau Talwrn SSSI outwith the SAC is also covered by the plan. Cors Erddreiniog, Cors Bodeilio, Cors y Farl and Cors Goch form part of the Corsydd Môn a Lleyrn Ramsar site

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

<http://www.ccw.gov.uk/sites>. See summary map showing the coverage of this document.

### **2.2 Outline Description**

Corsydd Mon comprises a series of fen basins located on the limestone of eastern Anglesey. Several of the sites (Cors Goch, Cors y Farl, Cors Erddreiniog, Cors Bodeilio) occupy former lake basins which have gradually infilled with clay, marl and peat sediments. These sites and others (Waun Eurad, Caeau Talwrn, Gwenfro - Rhos y Gad) also contain areas of flush mire where calcareous springs irrigate the surface. The site includes some of the best examples of base-rich fen (Alkaline fen and Calcareous fen) in Wales along with oligotrophic (nutrient poor) lakes, areas of purple moor grass (*Molinia caerulea*) meadow, wet and dry heath and associated areas of neutral and calcareous grassland. The sites support many species including Geyer's whorl snail, southern damselfly, marsh fritillary, great crested newt and otter. The component sites are set within a mainly agricultural landscape of livestock farms and small settlements.

### **2.3 Outline of Past and Current Management**

Past management of these areas has included the extraction of peat and marl for fuel and agriculture, cutting of reed for bedding or thatch, grazing by livestock, burning to improve the herbage quality, extraction of firewood and scrub, hunting and fishing. Past attempts at drainage and the maintenance of lowered water levels in parts of the site continue to damage examples of both SAC fen features. Management agreements and acquisitions are being pursued to try to resolve this, and Water Level Management Plans are in preparation by the Environment Agency supported and advised by CCW. The abandonment of traditional grazing and reed and peat-cutting practices in some areas is leading to undesirable successional changes in vegetation composition and structure. Management agreements or direct management by conservation agencies (namely CCW & North Wales Wildlife Trust) are seeking to reinstate grazing with cattle or ponies, scrub and reed cutting and in some instances possibly peat-cutting, to slow down or in places reverse successional change. Pollution of water supplies, especially by agricultural run-off of nitrate and phosphate, threatens the site with eutrophication. Means to address this problem are currently being explored. Airborne nitrogen inputs are an insidious but long-term threat. The NNR sections of this site are subject to management plans, including measures to enable public access and understanding.

## 2.4 Management Units

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

See accompanying management unit maps.

## 3. THE SPECIAL FEATURES

### 3.1 Confirmation of Special Features

<i>Designated feature</i>	<i>Relationships, nomenclature etc</i>	<i>Conservation Objective in part 4</i>
<i>SAC features</i>		
Annex I habitats that are a primary reason for selection of this site: Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> (EU habitat code 7120)	Equivalent to Ramsar “base-rich, calcareous fens” and SSSI base-rich fen	1
Annex I habitats that are a primary reason for selection of this site: Alkaline fens (EU habitat code 7230)	Equivalent to Ramsar “base-rich, calcareous fens” and SSSI base-rich fen	2
Annex I habitats that are a primary reason for selection of this site: Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	Equivalent to SSSI “open water” feature	3
Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: Northern Atlantic wet heaths with <i>Erica tetralix</i>		4
Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: <i>Molinia</i> meadows on calcareous, peaty or clayey-silt laden soils ( <i>Molinion caeruleae</i> )		5
Other Annex I habitat present on the site: European dry heaths		6
Annex II species that are a primary reason for selection of this site: <i>Vertigo geyeri</i>	A whorl snail	7
Annex II species present as a	Southern damselflies	8

qualifying feature, but not a primary reason for site selection; <i>Coenagrion mercuriale</i>		
Annex II species present as a qualifying feature, but not a primary reason for site selection: <i>Euphydrias (Eurodryas, Hypodryas) aurinia</i>	Marsh fritillary	9
Other Annex II species present on the site: <i>Triturus cristatus</i>	Great crested newt	10
Other Annex II species present on the site: <i>Lutra lutra</i>	Otter	11
<b>SPA features</b>		
Not applicable		
<b>Ramsar features</b>		
base-rich, calcareous fens	SAC calcareous and alkaline fens	1, 2
<b>SSSI features</b>		
Neutral grassland		12
Calcareous grassland		13
Marshy grassland		14
Vascular plant assemblage		15
<i>Gentiana pneumonanthe</i>		16
<i>Antennaria dioica</i>		17
<i>Potamogeton coloratus</i>		18
<i>Taraxacum palustre</i>		19
<i>Microglossum olivaceum</i>		20
<i>Ophrys insectifera</i> (fly orchid)		21
Stonewort assemblage		22
<i>Nitella tenuissima</i>		23
Peatland invertebrate assemblage		24
<i>Stratiomys chamaeleon</i> (soldier fly)		25
<i>Limnephilus tauricus</i> (caddis fly)		26
<i>Hirudo medicinalis</i>		27
<i>Coenagrion pulchellum</i>		28
<i>Ischnura pumilio</i>		29
<i>Arvicola terrestris</i> Water vole		30

### 3.2 Special Features and Management Units\_

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

#### Key Features

**KH** - a 'Key Habitat' in the management unit, i.e. the habitat that is the main driver of management and focus of monitoring effort, perhaps because of the dependence of a key species (see KS below). There will usually only be one Key Habitat in a unit but there can be more, especially with large units.

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

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

### Other Features

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

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

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

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

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

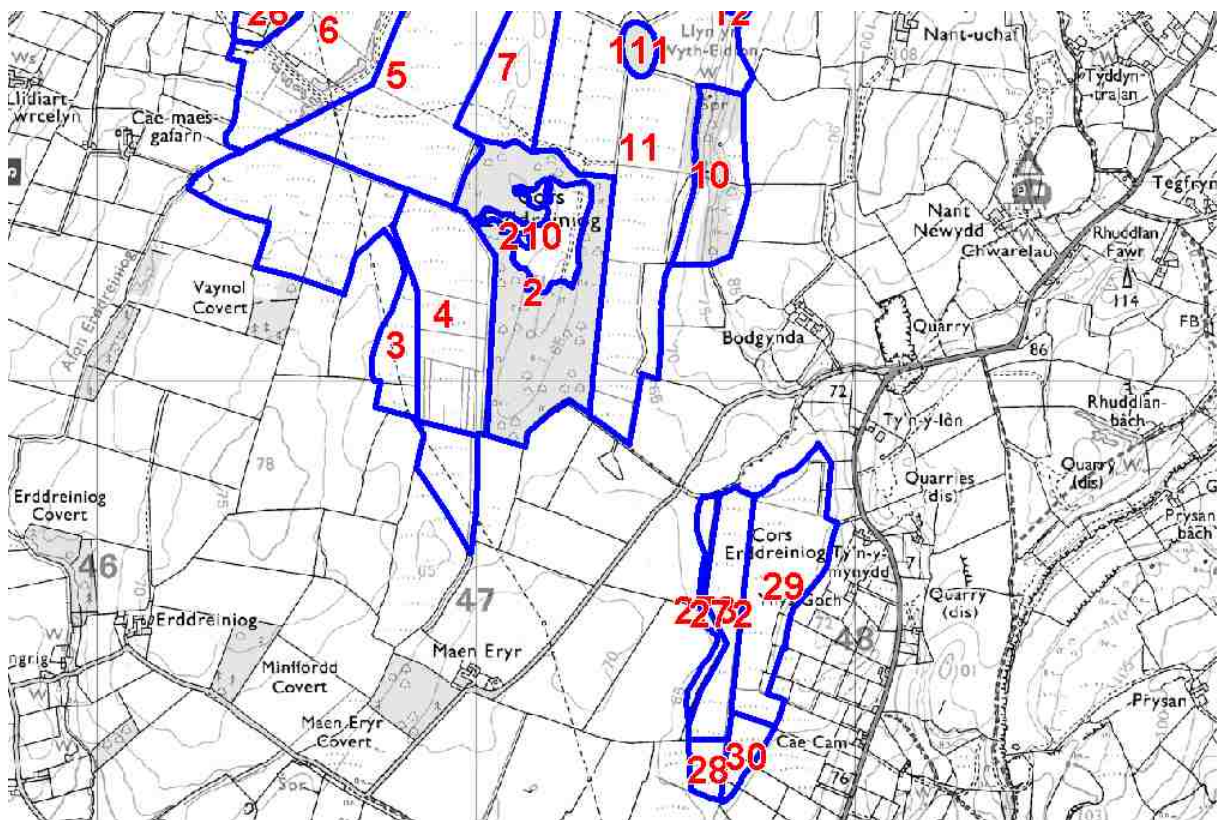
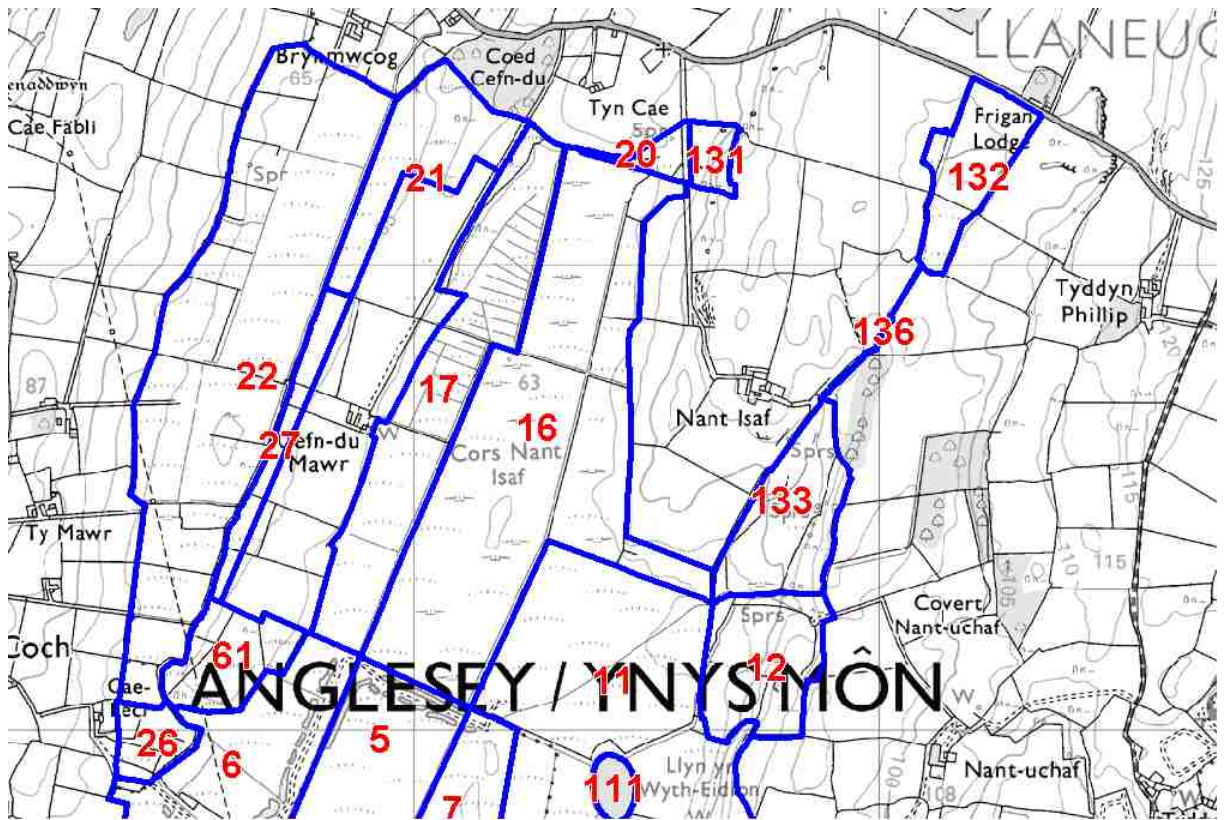
The tables below sets out the relationship between the special features and management units identified in this plan:

Cors Erddreiniog	Management unit								
	2	2a	3	4	5	6	6a	7	10
SAC	√	√	√	√	√	√	√	√	√
SSSI	√	√	√	√	√	√	√	√	√
NNR/CCW owned	√	√	√	√	√	√	√	√	√
<b>SAC features</b>									
Calcareous fens				<b>KH</b>	<b>KH</b>	<b>Sym</b>		<b>Sym</b>	
Alkaline fens		<b>Sym</b>	<b>Sym</b>		<b>Sym</b>	<b>KH</b>	<b>Sym</b>	<b>KH</b>	
Hard oligo-mesotrophic waters		<b>Sym</b>				<b>Sym</b>			
Northern Atlantic wet heaths	<b>Nm</b>	<b>KH</b>	<b>Syn</b>			<b>Sym</b>	<b>KH</b>		
<i>Molinia</i> meadows		<b>Sym</b>	<b>KH</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	
European dry heaths									
<i>Vertigo geyeri</i>						<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	
<i>Coenagrion mercuriale</i>								<b>Sym</b>	
<i>Euphydrias aurinia</i>			<b>KS</b>	<b>KS</b>	<b>Sym</b>	<b>Symm</b>	<b>KS</b>	<b>KS</b>	
<i>Triturus cristatus</i>									
<i>Lutra lutra</i>									
<b>Additional SSSI features</b>									
Neutral grassland								<b>Sym</b>	<b>Sym</b>
Vascular plant assemblage							<b>Sym</b>	<b>Sym</b>	
<i>Gentiana pneumonanthe</i>		<b>KS</b>					<b>Sym</b>		
<i>Antennaria dioica</i>		<b>Sym</b>					<b>Sym</b>		
<i>Ophrys insectifera</i> (fly orchid)								<b>Sym</b>	
Stonewort assemblage		<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	
<i>Nitella tenuissima</i>					<b>Sym</b>	<b>Sym</b>			
Peatland invertebrate assemblage		<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	
<i>Stratiomys chamaeleon</i> (soldier fly)								<b>Sym</b>	

<i>Limnephilus tauricus</i> (caddis fly)									
<i>Ischnura pumilio</i>								<b>Sym</b>	
<i>Coenagrion pulchellum</i>									
<i>Arvicola terrestris</i> Water vole							<b>Sym</b>	<b>Sym</b>	
Semi—natural woodland	<b>KH</b>								
Scrub		<b>Nm</b>		<b>Sym</b>					
Hedges									<b>Sym</b>

Cors Erddreiniog	Management unit								
	11	11a	12	13a	13b	13c	13f	16	17
SAC	√	√	√	√	√	√	√	√	√
SSSI	√	√	√	√	√	√	√	√	√
NNR/CCW owned	√	√							√
<b>SAC features</b>									
Calcareous fens	<b>KH</b>	<b>Sym</b>			<b>Sym</b>			<b>Sym</b>	
Alkaline fens	<b>KH</b>			<b>KH</b>	<b>KH</b>	<b>KH</b>		<b>KH</b>	<b>Sym</b>
Hard oligo-mesotrophic waters	<b>Sym</b>	<b>KH</b>					<b>KH</b>	<b>Sym</b>	
Northern Atlantic wet heaths				<b>Sym</b>				<b>Sym</b>	<b>KH</b>
<i>Molinia</i> meadows	<b>Sym</b>			<b>Sym</b>	<b>Sym</b>	<b>Sym</b>		<b>Sym</b>	<b>Sym</b>
European dry heaths									
<i>Vertigo geyeri</i>	<b>Sym</b>			<b>Sym</b>	<b>Sym</b>	<b>Sym</b>		<b>Sym</b>	
<i>Coenagrion mercuriale</i>	<b>Sym</b>			<b>KS</b>	<b>Sym</b>	<b>KS</b>	<b>Sym</b>	<b>KS</b>	
<i>Euphydrys aurinia</i>	<b>Sym</b>			<b>Sym</b>	<b>KS</b>			<b>Sym</b>	<b>Sym</b>
<i>Triturus cristatus</i>									
<i>Lutra lutra</i>									
<b>Additional SSSI features</b>									
Neutral grassland			<b>Sym</b>			<b>Sym</b>		<b>Sym</b>	
Calcareous grassland						<b>Sym</b>			
Vascular plant assemblage	<b>Sym</b>	<b>Sym</b>		<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>
<i>Gentiana pneumonanthe</i>				<b>Sym</b>					<b>KS</b>
<i>Antennaria dioica</i>	<b>Sym</b>			<b>Sym</b>		<b>Sym</b>		<b>Sym</b>	<b>Sym</b>
<i>Ophrys insectifera</i> (fly orchid)	<b>Sym</b>			<b>Sym</b>	<b>Sym</b>	<b>Sym</b>		<b>Sym</b>	
Stonewort assemblage	<b>KS</b>	<b>KS</b>		<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>
<i>Nitella tenuissima</i>	<b>Sym</b>	<b>Sym</b>						<b>Sym</b>	
Peatland invertebrate assemblage	<b>Sym</b>	<b>Sym</b>		<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>
<i>Stratiomys chamaeleon</i> (soldier fly)	<b>Sym</b>			<b>Sym</b>		<b>Sym</b>		<b>Sym</b>	<b>Sym</b>
<i>Limnephilus tauricus</i> (caddis fly)	<b>Sym</b>	<b>Sym</b>						<b>Sym</b>	
<i>Ischnura pumilio</i>	<b>Sym</b>	<b>Sym</b>		<b>Sym</b>	<b>Sym</b>	<b>Sym</b>		<b>Sym</b>	<b>Sym</b>
<i>Coenagrion pulchellum</i>									
<i>Arvicola terrestris</i> Water vole	<b>Sym</b>	<b>Sym</b>		<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>KS</b>	<b>Sym</b>	<b>Sym</b>
Semi—natural woodland			<b>KH</b>			<b>Sym</b>			
Scrub									
Hedges	<b>Sym</b>								

Cors Erddreiniog	Management unit									
	20	21	22	26	27	27b	27c	28	29	30
SAC	√	√	√	√	√	√	√	√	√	√
SSSI	√	√	√	√	√	√	√	√	√	√
NNR/CCW owned /occupied		√	√	√						
<b>SAC features</b>										
Calcareous fens	Sym	Sym	KH	Sym	KH	KH		KH	Sym	KH
Alkaline fens	KH	KH	Sym	Sym		Sym		Sym	KH	Sym
Hard oligo-mesotrophic waters			Sym		Sym					
Northern Atlantic wet heaths	Sym	Sym	Sym			Sym		Sym	Sym	
<i>Molinia</i> meadows	Sym	Sym	Sym	KH	Sym	Sym		Sym	Sym	Sym
European dry heaths										
<i>Vertigo geyeri</i>	Sym	Sym	Sym					Sym		
<i>Coenagrion mercuriale</i>	Sym	Sym								
<i>Euphydrys aurinia</i>	KS	KS	Sym	KS	KS	KS		KS	KS	KS
<i>Triturus cristatus</i>		Sym	Sym							
<i>Lutra lutra</i>			Sym							
<b>Additional SSSI features</b>										
Neutral grassland			Sym							
Calcareous grassland			Sym							
Vascular plant assemblage	Sym	Sym	Sym		Sym	Sym		Sym	Sym	Sym
<i>Gentiana pneumonanthe</i>		Sym	Sym							
<i>Antennaria dioica</i>	Sym	Sym	Sym							
<i>Ophrys insectifera</i> (fly orchid)			Sym							
Stonewort assemblage	Sym	Sym	Sym		Sym	Sym		Sym	Sym	Sym
<i>Nitella tenuissima</i>			Sym							
Peatland invertebrate assemblage	Sym	Sym	Sym		Sym	Sym		Sym	Sym	Sym
<i>Stratiomys chamaeleon</i> (soldier fly)	Sym		Sym					Sym	Sym	
<i>Limnephilus tauricus</i> (caddis fly)			Sym	Sym						
<i>Ischnura pumilio</i>	Sym		Sym	Sym						
<i>Arvicola terrestris</i> Water vole	Sym	Sym	Sym	Sym	Sym	Sym		Sym	Sym	Sym
Semi—natural woodland				Sym						
Scrub										
Hedges			Sym	Sym			Sym			

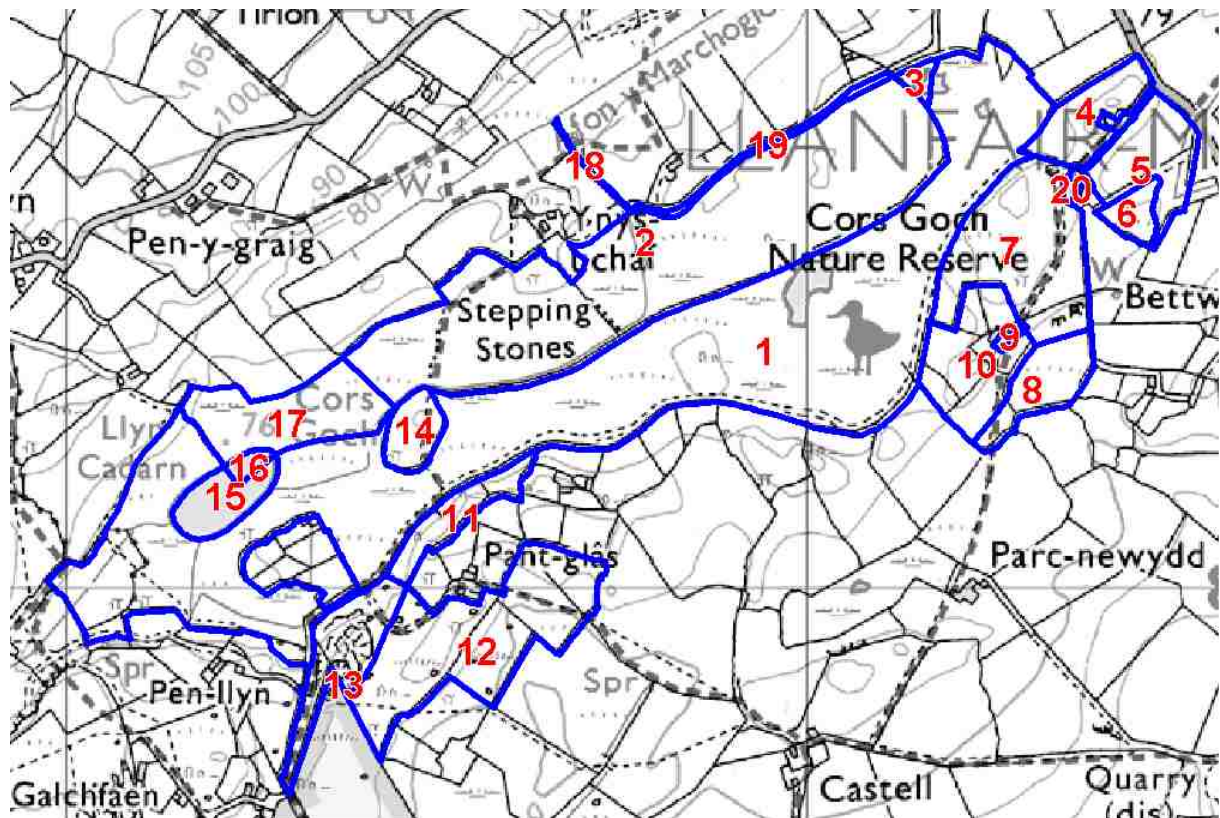




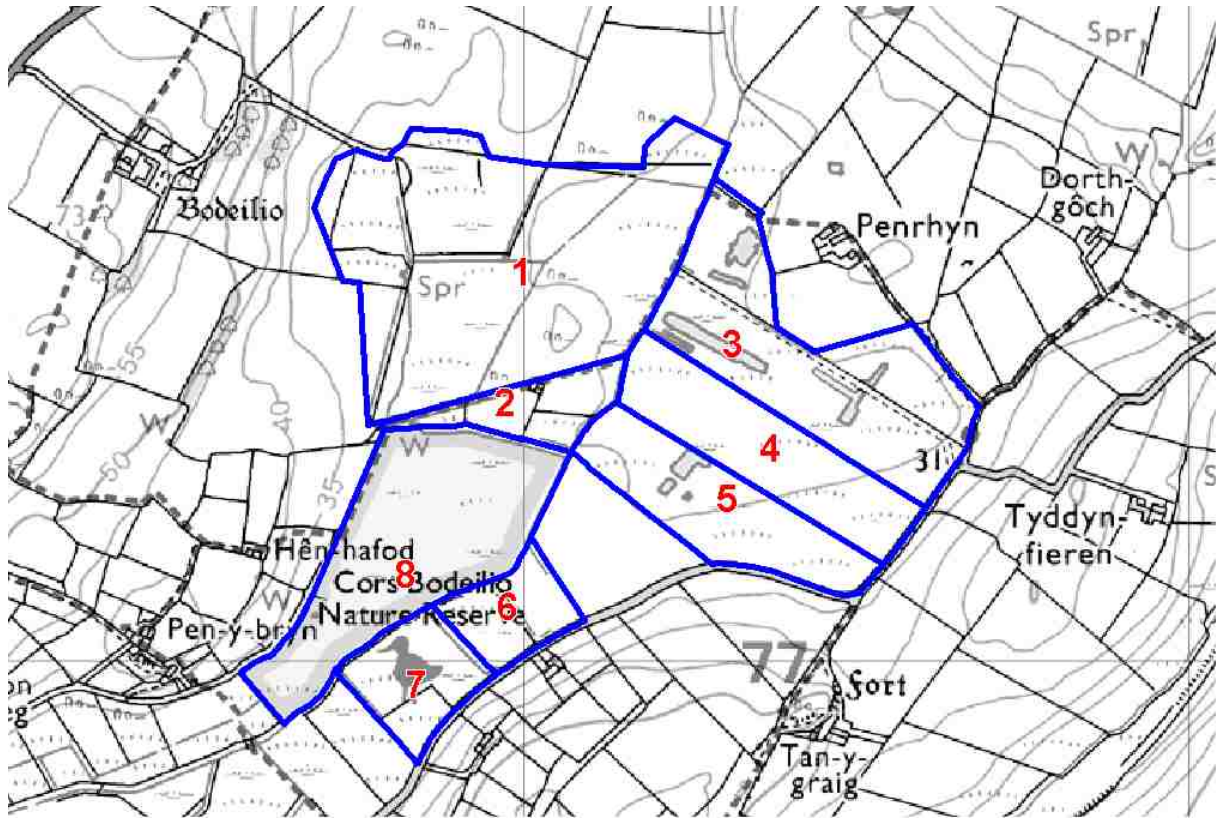
Cors Goch	Management unit								
	1	2	3	4	5	6	7	8	9
SAC	√	√	√	√	√	√	√	√	√
SSSI	√	√	√	√	√	√	√	√	√
NNR	√	√					√	√	√
<b>SAC features</b>									
Calcareous fens	<b>KH</b>	<b>KH</b>	<b>KH</b>					<b>Sym</b>	
Alkaline fens	<b>KH</b>	<b>KH</b>	<b>Sym</b>		<b>Sym</b>		<b>Sym</b>	<b>KH</b>	
Hard oligo-mesotrophic waters	<b>Sym</b>	<b>Sym</b>							
Northern Atlantic wet heaths	<b>Sym</b>	<b>Sym</b>		<b>Sym</b>	<b>KH</b>	<b>KH</b>	<b>Sym</b>	<b>Sym</b>	
<i>Molinia</i> meadows	<b>Sym</b>	<b>Sym</b>			<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	
European dry heaths						<b>Sym</b>	<b>KH</b>		
<i>Vertigo geyeri</i>									
<i>Coenagrion mercuriale</i>	<b>Sym</b>	<b>Sym</b>							
<i>Euphydryas aurinia</i>	<b>Sym</b>	<b>Sym</b>			<b>KS</b>	<b>KS</b>	<b>KS</b>	<b>KS</b>	
<i>Triturus cristatus</i>									
<i>Lutra lutra</i>									
<b>Additional SSSI features</b>									
Neutral grassland									
Calcareous grasslands							<b>Sym</b>	<b>Sym</b>	
<i>Antennaria dioica</i>	<b>Sym</b>	<b>Sym</b>			<b>Sym</b>		<b>Sym</b>	<b>Sym</b>	
<i>Taraxacum palustre</i>		<b>Sym</b>					<b>Sym</b>	<b>Sym</b>	
Stonewort assemblage	<b>KS</b>	<b>KS</b>	<b>Sym</b>		<b>Sym</b>	<b>Sym</b>		<b>Sym</b>	
<i>Nitella tenuissima</i>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>						
Peatland invertebrate assemblage	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>		<b>Sym</b>	
<i>Hiruda medicinalis</i>	<b>Sym</b>	<b>Sym</b>	<b>KS</b>						
<i>Coenagrion pulchellum</i>	<b>Sym</b>	<b>Sym</b>							

Cors Goch	Management unit								
	10	11	12	13	14	15	16	17	18
SAC	√	√	√	√	√	√	√	√	√
SSSI	√	√	√	√	√	√	√	√	√
NNR	√	√		√	√	√			
<b>SAC features</b>									
Calcareous fens						Sym		KH	
Alkaline fens		Sym	Sym	KH				Sym	
Hard oligo-mesotrophic waters						KH	KH	Sym	
Northern Atlantic wet heaths			KH	Sym	Sym				
<i>Molinia</i> meadows	Sym	Sym	Sym	Sym	KH			Sym	
European dry heaths			Sym						
<i>Vertigo geyeri</i>									
<i>Coenagrion mercuriale</i>									
<i>Euphydrias aurinia</i>			KS	KS	KS			KS	
<i>Triturus cristatus</i>									
<i>Lutra lutra</i>									
<b>Additional SSSI features</b>									
Neutral grassland									
Calcareous grasslands	KH	KH							
<i>Antennaria dioica</i>		Sym	Sym	Sym					
<i>Taraxacum palustre</i>									
Stonewort assemblage			Sym	Sym		KS	KS	Sym	
<i>Nitella tenuissima</i>						Sym	Sym	Sym	
Peatland invertebrate assemblage			Sym	Sym	Sym	Sym	Sym	Sym	
<i>Hiruda medicinalis</i>						Sym	Sym	Sym	
<i>Coenagrion pulchellum</i>							Sym		

Cours Goch	Management unit								
	19	20							
SAC	√	√							
SSSI	√	√							
NNR									
<b>SAC features</b>									
Calcareous fens									
Alkaline fens									
Hard oligo-mesotrophic waters									
Northern Atlantic wet heaths									
<i>Molinia</i> meadows									
European dry heaths									
<i>Vertigo geyeri</i>									
<i>Coenagrion mercuriale</i>									
<i>Euphydrias aurinia</i>									
<i>Triturus cristatus</i>									
<i>Lutra lutra</i>									
<b>Additional SSSI features</b>									
Neutral grassland		Sym							
Calcareous grasslands									
<i>Antennaria dioica</i>									
<i>Taraxacum palustre</i>									
Stonewort assemblage									
<i>Nitella tenuissima</i>									
Peatland invertebrate assemblage									
<i>Hiruda medicinalis</i>									
<i>Coenagrion pulchellum</i>									



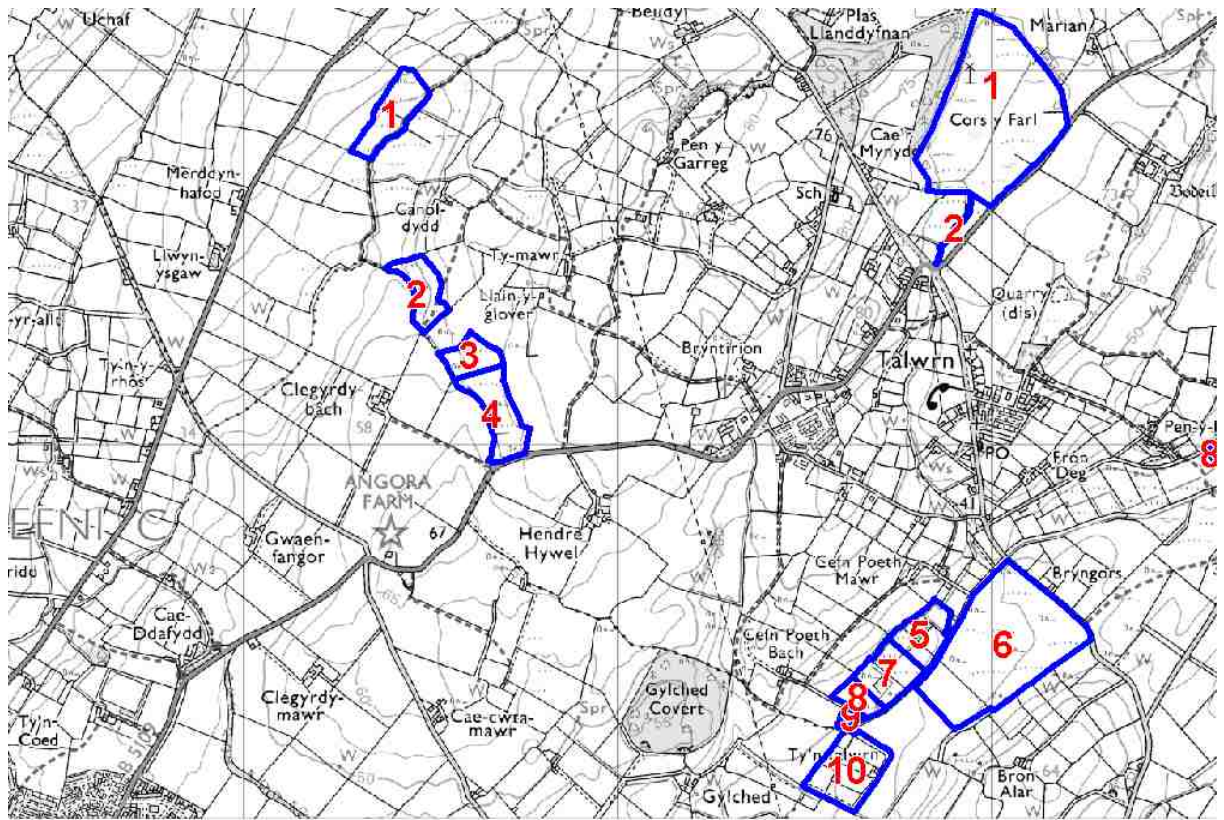
Cors Bodeilio	Management unit							
	1	2	3	4	5	6	7	8
SAC	√	√	√	√	√	√	√	√
SSSI	√	√	√	√	√	√	√	√
NNR/CCW owned	√	√	√	√	√	√		
<b>SAC features</b>								
Calcareous fens	Sym	KH	Sym	Sym	Sym	Sym	Sym	Sym
Alkaline fens	KH		KH	KH	KH	KH	KH	KH
Hard oligo-mesotrophic waters	Sym		Sym	Sym	Sym			
Northern Atlantic wet heaths								
<i>Molinia</i> meadows	Sym	Sym	Sym	Sym	Sym	Sym	Sym	Sym
European dry heaths								
<i>Vertigo geyeri</i>								
<i>Coenagrion mercuriale</i>								
<i>Euphydrias aurinia</i>	KS		Sym	Sym	Sym	Sym	KS	KS
<i>Triturus cristatus</i>								
<i>Lutra lutra</i>								
<b>Additional SSSI features</b>								
Neutral grassland		Sym			Sym			
<i>Potamogeton coloratus</i>	Sym	Sym	Sym	Sym	Sym	Sym	Sym	Sym
<i>Ophrys insectifera</i>	Sym	Sym	Sym	Sym	Sym	Sym	Sym	Sym
<i>Microglossum olivaceum</i>	Sym	Sym	Sym	Sym	Sym	Sym	Sym	Sym
Stonewort assemblage	Sym	Sym	KS	KS	Sym	Sym	Sym	KS
<i>Nitella tenuissima</i>	Sym	Sym	Sym	Sym	Sym	Sym	Sym	Sym
Peatland invertebrate assemblage	Sym	Sym	Sym	Sym	Sym	Sym	Sym	Sym
<i>Hirudo medicinalis</i>		Sym	Sym	Sym	KS	Sym	Sym	Sym



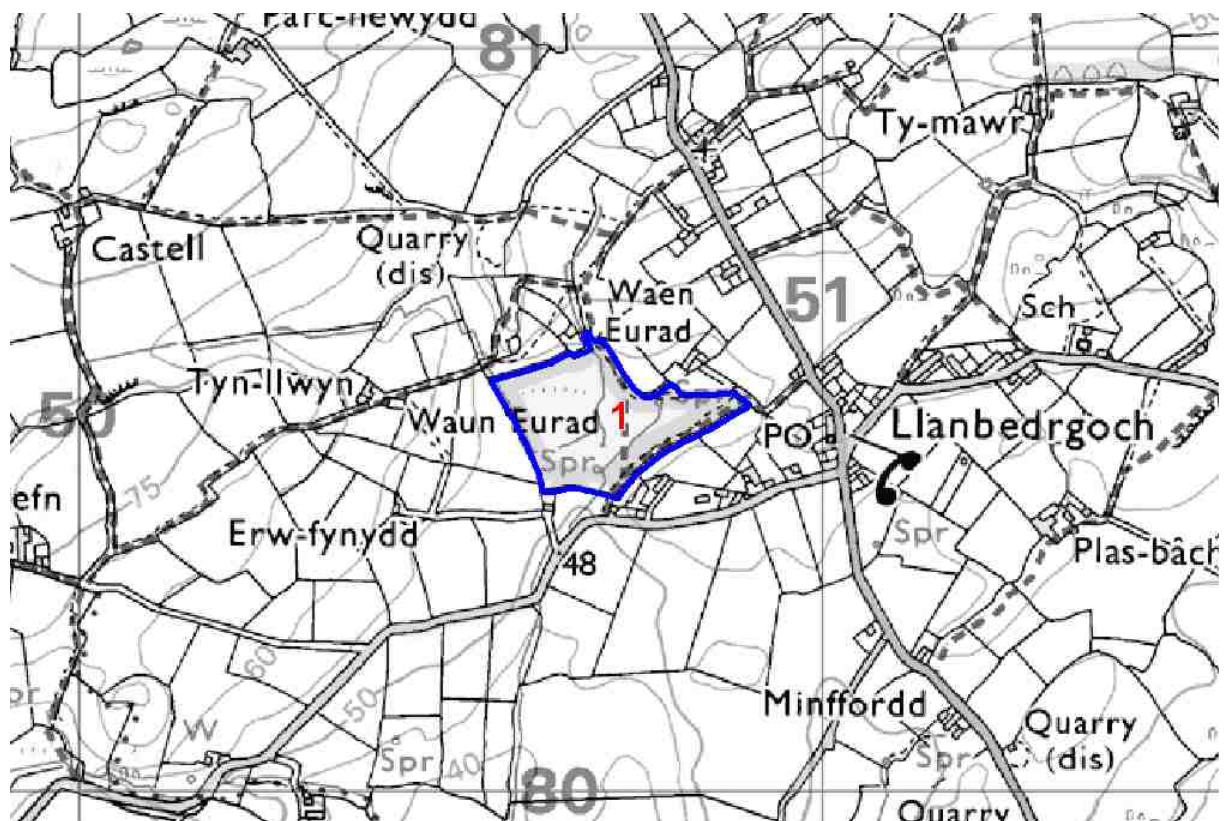
Cors y Farl	Management unit								
	1	2							
SAC	√	√							
SSSI	√	√							
NNR/CCW owned									
<b>SAC features</b>									
Calcareous fens	<b>KH</b>								
Alkaline fens	<b>KH</b>								
Hard oligo-mesotrophic waters									
Northern Atlantic wet heaths									
<i>Molinia</i> meadows									
European dry heaths									
<i>Vertigo geyeri</i>									
<i>Coenagrion mercuriale</i>									
<i>Euphydryas aurinia</i>	<b>Sym</b>								
<i>Triturus cristatus</i>									
<i>Lutra lutra</i>									
<b>Additional SSSI features</b>									
Peatland invertebrate assemblage	<b>Sym</b>								

Caeau Talwrn	Management Units									
	1	2	3	4	5	6	7	8	9	10
SAC	√	√	√	√						
SSSI	√	√	√	√	√	√	√	√	√	√
NNR/CCW owned										
<b>SAC features</b>										
Calcareous fens	<b>Sym</b>	<b>Sym</b>								
Alkaline fens										
Hard oligo-mesotrophic waters										
Northern Atlantic wet heaths										
<i>Molinia</i> meadows	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>						
European dry heaths										
<i>Vertigo geyeri</i>										
<i>Coenagrion mercuriale</i>										
<i>Euphydryas aurinia</i>	<b>KS</b>	<b>KS</b>	<b>KS</b>	<b>KS</b>						
<i>Triturus cristatus</i>										
<i>Lutra lutra</i>										
<b>SSSI features</b>										
Neutral grassland					<b>Sym</b>	<b>Sym</b>		<b>Sym</b>		<b>KH</b>
Marshy grassland				<b>Sym</b>	<b>KH</b>	<b>Sym</b>	<b>Sym</b>	<b>Sym</b>	<b>KH</b>	
Flush & Spring					<b>Sym</b>	<b>KH</b>	<b>KH</b>	<b>KH</b>		
Scrub					<b>Nm</b>	<b>Sym</b>				<b>Nm</b>



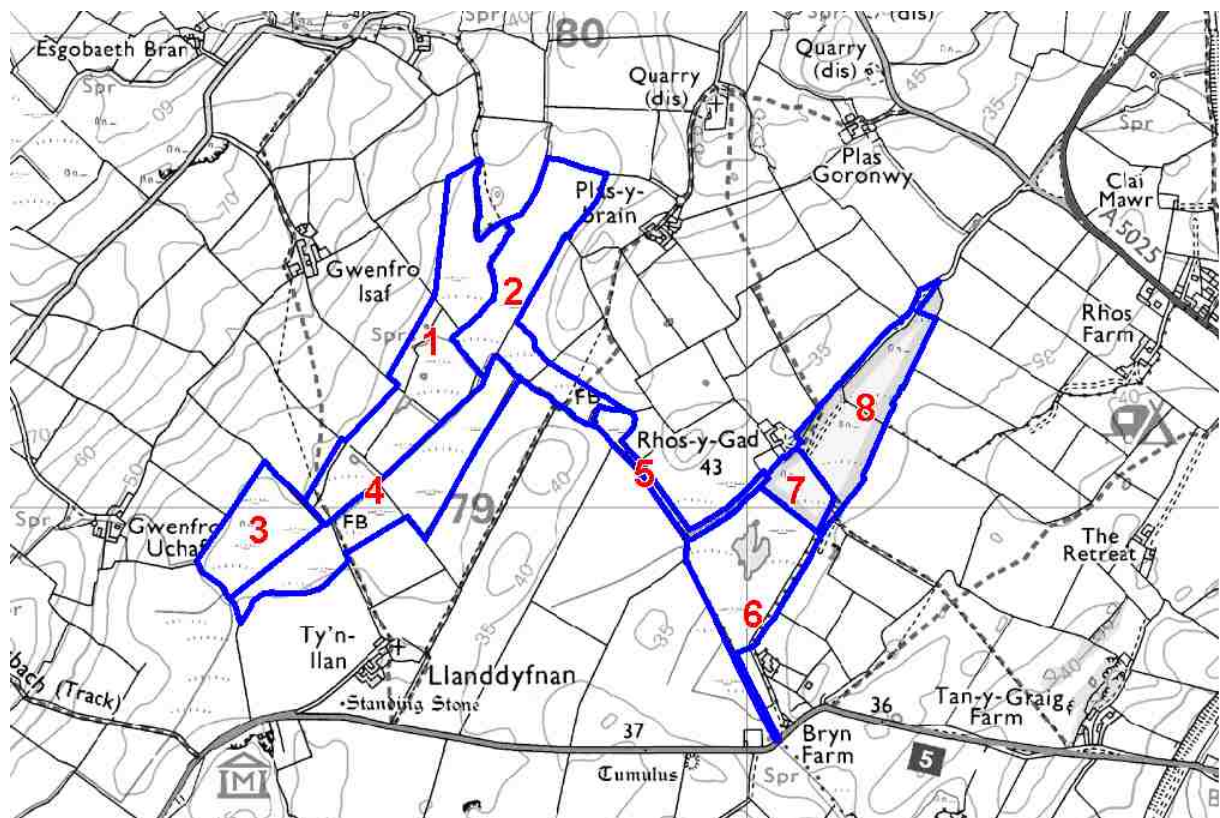


Waen Eurad	Management unit							
	<b>1</b>							
SAC	√							
SSSI	√							
NNR/CCW owned								
<b>SAC features</b>								
Calcareous fens								
Alkaline fens	<b>KH</b>							
Hard oligo-mesotrophic waters								
Northern Atlantic wet heaths								
<i>Molinia</i> meadows	<b>Sym</b>							
European dry heaths								
<i>Vertigo geyeri</i>	<b>KS</b>							
<i>Coenagrion mercuriale</i>								
<i>Euphydryas aurinia</i>	<b>Sym</b>							
<i>Triturus cristatus</i>								
<i>Lutra lutra</i>								
<b>Additional SSSI features</b>								
<i>Taraxacum palustre</i>								
<i>Potamogeton coloratus</i>								
<i>Stratiomys chamaeleon</i>	<b>Sym</b>							





Gwenfro Rhos y Gad	Management unit								
	1	2	3	4	5	6	7	8	9
SAC	√	√	√	√	√	√	√	√	
SSSI	√	√	√	√	√	√	√	√	
NNR/CCW owned									
<b>SAC features</b>									
Calcareous fens	Sym		Sym		Sym	Sym	Sym		
Alkaline fens			KH		KH	KH	KH	KH	
Hard oligo-mesotrophic waters						Sym			
Northern Atlantic wet heaths									
<i>Molinia</i> meadows	KH	KH	Sym	KH	Sym	Sym	Sym	Sym	
European dry heaths									
<i>Vertigo geyeri</i>									
<i>Coenagrion mercuriale</i>									
<i>Euphydryas aurinia</i>	Sym		Sym	KS	Sym		Sym	Sym	
<i>Triturus cristatus</i>									
<i>Lutra lutra</i>									
<b>Additional SSSI features</b>									
<i>Ophrys insectifera</i>									Sym
<i>Hirudo medicinalis</i>	Sym	KS	Sym	Sym		KS	Sym		



## 4. CONSERVATION OBJECTIVES

### Background to Conservation Objectives:

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

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

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

#### **Box 1**

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

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

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

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

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

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

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

- Conservation planning and management.

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

- Assessing plans and projects.

Article 6(3) of the 'Habitats' Directive requires appropriate assessment of proposed plans and projects against a site's conservation objectives. Subject to certain exceptions,

plans or projects may not proceed unless it is established that they will not adversely affect the integrity of sites. This role for testing plans and projects also applies to the review of existing decisions and consents.

- Monitoring and reporting.

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

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

#### **b. Format of the conservation objectives**

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

Each conservation objective consists of the following two elements:

1. Vision for the feature
2. Performance indicators

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

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.

---

<sup>1</sup> Web link: <http://www.jncc.gov.uk/page-2199>

#### 4.1 Conservation Objective for Feature 1: Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* (EU habitat code 7120)

##### 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:

- Calcareous fen occupies at least 20% (93ha) of the total site area.
- Calcareous fen is distributed over at least 5 of the 7 sites including Cors Erddreiniog, Cors Bodeilio, Cors Goch, Gwenfro-Rhos Y Gad and Cors Y Farl.
- Calcareous fen exhibits a range of condition states (see below) in which great fen sedge *Cladium* is frequent to dominant, with no less than 10% referable to species-poor *Cladium* swamp and the remainder to either vegetation in which *Cladium* occurs with sweet gale *Myrica gale*, blunt-flowered rush *Juncus subnodulosus*, purple moor-grass *Molinia caerulea* and cross-leaved heath *Erica tetralix*, or vegetation with many of the above elements as well as bog-bean *Menyanthes trifoliata* marsh cinquefoil *Potentilla palustris*, bladderwort *Utricularia vulgaris*, and slender sedge *Carex lasiocarpa* and other small sedges. .
- Species indicative of drainage or agricultural modification, such as yorkshire fog *Holcus lanatus*, bramble *Rubus spp.*, nettle *Urtica dioica* are largely absent from the calcareous fen.
- Purple moor grass *Molinia caerulea* does not exceed 25% of ground cover.
- Leaf Litter forms no more than 20% of the ground cover at any location.
- Scrub species such as willow *Salix* and birch *Betula* are largely absent from the calcareous fen .
- *Rhododendron spp.* is absent.
- Standing surface water is present or expressible on footfall over most of the winter period.
- Groundwater is within 15cm of surface in mid summer.
- All hydrological (diffuse, surface and sub-surface) pathways (inputs and outputs) are restored and/or intact (includes ditch infilling, blocking, diversion and re-engineering). Water quality reflects the base-rich but nutrient poor requirements of the habitat.

All factors affecting the achievement of these conditions are under control.

##### Performance indicators for Feature 1

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

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
<b>A1.</b> Extent of calcareous fen	Lower limit is based on N2K data form. However, present extent appears to be significantly below this level and includes areas of habitat in sub-optimal condition	<i>Upper limit:</i> As limited by hydroecological potential.. <i>Lower limit:</i> 20%  Target areas are; Cors Erddreiniog: 55.5ha Cors Goch: 14.6ha Gwenfro RyG: 0.7ha Cors y Farl: 4.8ha Cors Bodeilio: 17ha
<b>A2.</b> Condition of Calcareous fen	Calcareous fen includes a range of structural and floristic elements, including species-poor <i>Cladium</i> swamp occurring chiefly in hydrosereal contexts,	<i>Upper limit:</i> 10% species-poor <i>Cladium</i> swamp, 20% <i>Cladio-Molinietum</i> , 70% open <i>Cladium</i> fen with lime-loving elements.

	species-rich fen with an open canopy of <i>Cladium</i> and numerous lime-loving elements, and open <i>Cladium</i> fen with species indicative of moderately leached conditions, including <i>Molinia caerulea</i> , <i>Myrica gale</i> and <i>Erica tetralix</i> (so-called <i>Cladio-Molinietum</i> ). This diversity of elements is an important feature of calcareous fen in north-west Wales; maintenance of this blend of elements will also ensure appropriate structural diversity. .	<i>Lower limit:</i> 30% <i>Cladium</i> swamp, 40% <i>Cladio-Molinietum</i> , 30% open <i>Cladium</i> fen with lime loving elements. .
<b>Performance indicators for factors affecting the feature</b>		
<b>Factor</b>	<b>Factor rationale and other comments</b>	<b>Operational Limits</b>
<b>F1.</b> Livestock grazing	Without an appropriate grazing regime, the fen would become dominated by a monospecific stand of <i>Cladium mariscus</i> . A richer biota is achieved by light grazing by heavy livestock to maintain an open sward.	<i>Upper limit:</i> <i>Lower limit:</i> 100% of the calcareous fen will be subject to light summer grazing by cattle and/or ponies at least 4 in every 5 years.  Light summer grazing is defined as that suitable to open up the sward and encourage species and structural diversity within the <i>Cladium</i> stand, although dependant on other factors (eg weather, nutrient input) on average it will be in the region of - cattle and/or ponies at a rate of 0.4 LSU/ha for the period April to October)
<b>F2.</b> Water quantity	The calcareous fen has been maintained through high water levels and water quality. This is determined by the balance of inputs – springwater, groundwater seepage, rainfall etc and outputs: drainage, evapotranspiration etc	The three main forms of this habitat have different water level requirements: <i>Cladium</i> swamp: winter +20, summer 0. <i>Cladio-Molinietum</i> . Winter 0, summer –30. Open <i>Cladium</i> fen with base-rich elements: winter +5, summer –15. <i>Upper limit:</i> None set. <i>Lower limit.</i> target regimes achieved for the three elements.
<b>F3.</b> Water quality	Water quality is affected by diffuse runoff from surrounding land and by atmospheric inputs.	<2.5mg/l N < 0.5 mg/l Total P
<b>F3a.</b> Water quality	Water quality is affected by point source inputs of nutrient	No unmanaged point source pollution/nutrient inputs
<b>F4.</b> Microtopography	The occurrence of this community is often related to old peat and marl diggings. Rejuvenation of the surface by shallow (150 – 300mm) turf stripping will be necessary over the longer term	Tussocks and intervening wet runnels should be distinct over at least 10% of the community area.
<b>F5.</b> Atmospheric deposition	Calcareous fen has a requirement for low nutrient conditions and can therefore be affected by the deposition of key	<i>Upper limit.</i> 13 kg N/ha/yr <i>Lower limit.</i> None set.

	nutrients in rainfall and as dry deposition. Estimated loadings of nitrogen within this SAC are of the order of 15 kg N/ha/yr which exceeds the lower range estimate of the critical load for atmospheric N for this habitat (13-20 kg N/ha/yr). As well as wider policy measures aimed at reducing nutrient deposition from the atmosphere, feature protection will rely on measures to control local point source and diffuse emissions to both the atmosphere and within catchments.	
--	---	--

## 4.2 Conservation Objective for Feature 2: Alkaline fen

### 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:

- Alkaline fen occupies at least 17% of the total site area.
- Alkaline fen is found on all 7 component sites.
- The following plants are common in the alkaline fen: black bog rush *Schoenus nigricans*, moss *Campyllum stellatum*, great fen sedge *Cladium mariscus* (up to 1m tall), blunt flowered rush *Juncus subnodulosus*, sweet gale *Myrica gale*, moss *Drepanocladus revolvens*, bladderwort *Utricularia sp.*, butterwort *Pinguicula vulgaris*,
- Species indicative of drainage or agricultural modification, such as yorkshire fog *Holcus lanatus*, bramble *Rubus spp.*, nettle *Urtica dioica*, are largely absent from the alkaline fen.
- Purple moor grass *Molinia caerulea* does not exceed 25% of ground cover and is restricted to drier areas
- Bare ground including tufa constitutes about 10% of the ground cover.
- Alkaline Fen exhibits a diverse age and height structure across the site (tussocks are undamaged and 20% short grazed, 50% mature – 30% in between incl bare ground ?)
- Scrub species such as willow *Salix spp* and birch *Betula pubescens* are largely absent from the alkaline fen.
- *Rhododendron spp.* is absent
- Water expressible on foot-fall or running surface water is present between tussocks throughout the year.
- All Hydrological (diffuse, surface and sub-surface) pathways (inputs and outputs) should be restored and/or intact (includes ditch infilling, blocking, diversion and re-engineering)
- Water quality is appropriate to the needs of the vegetation and species.
- 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>
<b>A1.</b> Extent of Alkaline fen	Lower limit is based on current expert opinion of the original extent of the feature on these sites in historic time.	<i>Upper limit:</i> .None set, <i>Lower limit:</i> 17%
<b>A2.</b> Condition of alkaline fen	Based on the Standard CSM attribute for this feature. Modified according to site	<i>Upper limit:</i> Not required <i>Lower limit:</i> 70% of the alkaline fen

	specific requirements.	is 'species-rich' fen in good condition, characterised by <i>Schoenus nigricans</i> or slender sedges.
<b>A3.</b> Condition of alkaline fen	Based on the Standard CSM attribute for this feature. Modified according to site specific requirements. Targets are split between M13 (spring flushed mire) and M9 (sedge swamp) communities.	<p><i>Upper limit</i></p> <p><b>Alkaline fen (M13)</b> In any 1m radius, the vegetation should not fail more than one of the following attributes; <i>Schoenus nigricans</i> is present. At least 2 of the following positive indicators should be present slender sedges, (<i>Carex</i> species with long slender leaves e.g. <i>C. diandra</i>, <i>C. lasiocarpa</i>, <i>C. nigra</i>, <i>C. rostrata</i> (including <i>C. hostiana</i> and <i>C. panicea</i>)).<i>Juncus subnodulosus</i>, brown and green mosses.(<i>Calliergon</i> sp., <i>Campylium</i> sp., <i>Cratoneuron</i> sp., <i>Drepanocladus</i> sp. and <i>Scorpidium</i> sp.) <i>Myrica gale</i> is less than knee height. <i>Molinia caerulea</i> is less than knee height. <i>Phragmites australis</i> is found at densities of &lt;20 stems (above shoulder height). <i>Equisetum telateia</i> is found at densities of &lt;5 stems. <b>Sample target for Alkaline fen (M13).</b> 75% of the points in a sample plot should fulfil the above.</p> <p><b>Alkaline fen (M9)</b> In any 1m radius, the vegetation should not fail on more than one of the following attributes;</p> <ol style="list-style-type: none"> <li>1. Slender sedges, <i>Juncus subnodulosus</i> and brown and green mosses are present.</li> <li>2. <i>Myrica gale</i> is less than knee height.</li> <li>3. <i>Molinia caerulea</i> is less than knee height.</li> <li>4. <i>Phragmites australis</i> is found at densities of &lt;20 stems (above shoulder height).</li> <li>5. <i>Agrostis stolonifera</i> is absent.</li> <li>6. <i>Sparganium erectum</i> is absent..</li> </ol> <p><b>Sample target for Alkaline fen (M9).</b> 75% of the points in a sample plot should fulfil the above.</p> <p><i>Lower limit:none set</i></p>
<b>A4.</b> Microtopography	<p>The occurrence of this community is often related to old peat and marl diggings. Rejuvenation of the surface by shallow (150 – 300mm) turf stripping will be necessary over the longer term</p> <p>The tussock structure of this community is important in creating the microhabitat of tussock and runnels in the richest</p>	<p>Upper limit: none set Lower limit: Tussocks and intervening wet runnels should be distinct over at least 10% of the community area.</p>

	examples. This is produced by a combination of the natural growth form of <i>Schoenus nigricans</i> , appropriate hydrological regime, and the effect of light poaching by heavy livestock.	
<b>Performance indicators for factors affecting the feature</b>		
<b>Factor</b>	<b>Factor rationale and other comments</b>	<b>Operational Limits</b>
<b>F1.</b> Livestock grazing	The alkaline fen has been maintained through traditional farming practices of peat/ marl digging and grazing. Without an appropriate grazing regime, the fen would become rank and eventually turn to scrub and woodland. Light grazing by cattle and ponies between April and November each year is essential in maintaining the marshy grassland communities.” Light summer grazing is defined as - cattle and/or ponies at a rate of 0.4 SU/ha/year for the period April to October.	<i>Upper limit:</i> none set <i>Lower limit:</i> 100% of the Alkaline fen will be subject to light summer grazing by cattle and/or ponies at least 4 in every 5 years.
<b>F2.</b> Water quantity	The alkaline fen has been maintained through regular water movement and water quality. This is determined by the balance of inputs – springwater, groundwater seepage, rainfall etc and outputs: drainage, evapotranspiration etc	Surface water present between tussocks in winter. Groundwater level $\leq$ 15cm below surface in summer  Surface water visible between <i>Schoenus</i> tussocks in 30% of the area.
<b>F3.</b> Water quality	Water quality is affected by diffuse runoff from surrounding land and by atmospheric inputs.	<2.5mg/l N <0.5 mg/l Total P
<b>F3. a.</b> Water quality	Water quality is affected by Point source inputs of nutrient	Upper limit: none set  Low limit: No unmanaged point source pollution/nutrient inputs
<b>F4.</b> Atmospheric pollution	Alkaline fen has a requirement for low nutrient conditions and can therefore be affected by the deposition of key nutrients in rainfall and as dry deposition. Estimated loadings of nitrogen within this SAC are of the order of 15 kg N/ha/yr which equates to the lower range estimate of the critical load for atmospheric N for this habitat (15-35 kg N/ha/yr). As well as wider policy measures aimed at reducing nutrient deposition from the atmosphere, feature protection will rely on measures to control local point source and diffuse emissions to both the atmosphere and within catchments.	Upper limit. 13 kg N/ha/yr Lower limit. None set.



### 4.3 Conservation Objective for Feature 3: Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.

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

- Open water occupies not less than 1% of the total site area.
- Natural deep lakes persist at Cors Goch and Cors Erddreiniog component sites
- The macrophyte, phytoplankton, zooplankton and predator components of the ecosystem operate in balance in a clear-water environment, where:
- Characteristic macrophyte species are present in the water bodies, including dense beds of stoneworts (*Chara* spp), in areas <6m deep
- Invasive non-native species are absent, or occur at no more than rare or occasional frequency.
- Locally native (non-coarse) fish are present.
- All coarse fish are absent
- Water quality is such as to maintain pH 7-9 and mean annual Total Phosphorus <15µg/l.
- The water is clear throughout the year, with an absence of algal blooms.
- Marl deposition occurs within all the lakes.
- There is minimal extraneous sediment input
- The integrity of the natural hydrological system (inputs and outputs) is intact.
- Appropriate water level is maintained throughout the year, (seasonal fluctuation 30cm).
- All factors affecting the achievement of these conditions are under control.

<b>Performance indicators for feature condition</b>		
<b>Attribute</b>	<b>Attribute rationale and other comments</b>	<b>Specified limits</b>
<b>A1.</b> Extent of feature	<i>No loss of extent of open water</i>	<i>Upper limit: 2% of site area Lower limit 1% of site area</i>
<b>A2.</b> Condition of feature: species composition	Based on the Standard CSM attribute for this feature. Modified according to site specific requirements.	<i>Upper limit: none set Lower limit: native aquatic macrophytes (especially <i>Chara</i> spp) “abundant” (more than 30%) at &lt;6m depth <i>Chara</i> species occur at more than 50% frequency along regular surveillance transects within the 2 lakes. These and other charophytes (<i>Nitella</i> and <i>Tolypella</i>) are also found in other shallow pools within Erddreiniog, Goch and Bodeilio. <i>Potamogeton coloratus</i> and <i>P gramineus</i> occur at least as “occasional” in the major lakes</i>
<b>A3.</b> Condition of feature: species composition – negative species indicators	Invasive exotic aquatic species can be highly disruptive to these ecosystems. In particular, <i>Crassula helmsii</i> , <i>Hydrocotyle ranunculoides</i> , <i>Elodea canadensis</i> , <i>Myriophyllum aquaticum</i> and <i>Azolla filiculoides</i> .	<i>Upper limit: no more than “rare or occasional ” in single water body  Lower limit: n/a</i>
<b>Performance indicators for factors affecting the feature</b>		
<b>Factor</b>	<b>Factor rationale and other comments</b>	<b>Operational Limits</b>
<b>F1.</b> Water quantity Water level:	Water level is a reflection of supply and drainage. Desiccation of marginal communities results from excessive seasonal fluctuations.	<i>Upper limit +/- 30cm Lower limit: none set</i>

<b>F1a</b> Groundwater	Hydrology in the aquifer. Exempt groundwater abstractions exist in the catchment. These need to be identified and recorded.	Upper limit: existing volume of abstraction  Lower limit: n/a
<b>F2.</b> Water quality	Water quality is crucial to this feature. Enrichment with N & P increases algal growth and leads to the smothering of the clear-water macrophyte community.  Water quality would appear to be an issue on both Llyn Cadarn and Llyn yr Wyth Eiddion. Both lakes are unusually deep for their size and this makes them relatively sensitive to nutrients.	<ul style="list-style-type: none"> <li>• &lt;15ug/l total P</li> <li>• pH =&gt;7 &lt;9</li> <li>• &lt;1mg/l TN</li> </ul>
<b>F3</b> Clear water	Clear water reflects algal growth – itself a reflection of water quality - and hence light penetration to macrophytes. Measured with a Secchi disc.	Upper limit: none Lower limit: outside dense chara beds, visibility of 3m on Secchi disc
<b>F4</b> Sediment	<p>Sediment from external sources (soil erosion) carries nutrients, reduces water clarity and leads to shallowing of the water body. Suspended sediments, from adjacent land outside the SAC/SSSI boundary flow into the lakes via streams. Gradually this is progressively filling in the lake system.</p> <p>Methods of reducing local soil erosion within the catchment should be investigated.</p> <p>CCW will work with others to examine existing land-use practices, to combat this process. Silt-traps outside the SAC/SSSI boundary should be employed to reduce silt loadings. The rate of sediment deposition should be measured to assess the results of such management.</p> <p>Sediment load deposition in the lakes should be from natural deposition on Chara and other submerged macrophytes A Secchi disk will be used to record water clarity</p>	Upper limit: sediment accumulation < 0.1 cm per year (approx). Lower limit: no allochthonous sediment in lakes or pools
<b>F5.</b> Fishery management	Coarse fish, in particular, can distort the ecological balance of the lakes by eating small microscopic animals (zooplankton) that feed on tiny algae (phytoplankton). There should preferably be no fishery on these lakes to avoid the danger to these delicate ecosystems	<i>Upper limit:</i> Ensure no fish introductions occur and allow no use of live bait. <i>Lower limit:</i> n/a

#### 4.4 Conservation Objective for Feature 4: *Molinia* meadows on calcareous, peaty or clayey-silt laden soils (*Molinion caeruleae*)

##### 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:

- *Molinia* meadows occupy at least 2% of the total site area.
- *Molinia* meadows are distributed over at all 7 component sites.
- The following plants are common in the *Molinia* meadows: purple moor-grass *Molinia caerulea*; devil's bit scabious *Succisa pratensis*; carnation sedge *Carex panicea*; saw wort *Serratula tinctoria*; lousewort *Pedicularis sylvestris*, *Carex pulicaris* and *C. hostiana* and Marsh orchids *Dactylorhiza* sp
- Soft rush *Juncus effusus* and species indicative of agricultural modification, such as perennial rye grass *Lolium perenne* and white clover *Trifolium repens* are largely absent from the *Molinia* Meadows.
- Purple moor grass *Molinia caerulea* does not exceed 50% of ground cover.
- Scrub species such as willow *Salix* and birch *Betula* are largely absent from the *Molinia* meadows
- Rhododendron spp. are absent
- Leaf litter should comprise <25% of ground cover
- Groundwater will be between –10cm and –25cm below ground level for most of the year
- The integrity of the hydrological system (inputs and outputs) will be intact.
- Swards structure should reflect the requirements of feature 9 (Marsh fritillary)
- 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>
<b>A1.</b> Extent of <i>Molinia</i> Meadows	Lower limit is based on current extent	<i>Upper limit:</i> As limited by other habitats. <i>Lower limit:</i> 2% of the site
<b>A2.</b> Condition of <i>Molinia</i> Meadows	Based on the Standard CSM attribute for this feature. Modified according to site-specific requirements.	<i>Upper limit:</i> Not required <i>Lower limit:</i> 70% of the <i>Molinia</i> Meadows is in good condition, characterised by: At least three positive indicator species Molinia <50% cover Litter <25% Bare ground 1-10% Agricultural weeds absent and, agr Succisa is =/>5% vegetation height is between 10-20cm when measured using a Boorman's disc. Bracken absent, and no more than 1 sapling or bush (over 20cm) is present.
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
<b>F1.</b> Livestock grazing	Without an appropriate grazing regime, the grassland would become rank and eventually turn to scrub and woodland. Light grazing by cattle or ponies	<i>Upper limit:</i>  <i>Lower limit:</i> The <i>Molinia</i> Meadows will be subject to light summer

	between April and November each year is essential for maintaining the marshy grassland communities Light summer grazing is defined as - cattle and/or ponies at a rate of 0.4 LSU/ha/year for the period April to October..	grazing by cattle and/or ponies at least 4 in every 5 years.
<b>F2. Scrub</b>	A key attribute, as grazing levels required to keep sward structure suitable for marsh fritillaries may be too low to prevent scrub encroachment. Bracken currently absent from the feature. Generic standard is for woody species and bracken to form no more than 5% cover. Translated into structured recording – requirement for no more than one sapling, and no bracken frond in each sample.	<i>Upper limit:</i> scrub levels on each component site not to exceed 10%  <i>Lower limit:</i> scrub to be present at least around margins of each site
<b>F3. Burning</b>	Burning can damage the bryophyte layer and encourage a vigorous re-growth of purple moor-grass and other fire-resistant species. Burning also impoverishes the invertebrate fauna, especially where marsh fritillary may be overwintering. Controlled burning may be used sparingly for the rejuvenation of rank pasture as part of a grazing regime.	<i>Upper limit:</i> 10% of feature area in any one year  <i>Lower limit:</i> no burning
<b>F4. Water Quality</b>	The habitat may be in part groundwater dependent. Groundwater could be subject to pollution from agricultural activities such as fertiliser application. The habitat could also be affected by airborne pollutants such as nitrous oxides from vehicle exhausts.	<i>Upper limit:</i> levels of pollutants must not exceed critical thresholds for vegetation types according to joint NE/CCW/EA guidance  <i>Lower limit:</i> none set
<b>F5. Water Quantity</b>	The habitat could be affected by any changes to groundwater flows or surface drainage works – for example due to abstraction from boreholes.	<i>Upper limit:</i> -10cm (below g.l.)  <i>Lower limit:</i> -25cm (below g.l.) groundwater flows must remain at current levels

---

#### **4.5 Conservation Objective for Feature 5: Northern Atlantic wet heaths with *Erica tetralix***

---

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

- Wet heath covers at least 4%ha of the site
- The following plants are common in the wet heath: heather *Calluna vulgaris*; Cross-leaved heath *Erica tetralix* as well as bog moss *Sphagnum* spp. Devil’s bit scabious *Succisa pratensis* and *Narthecium ossifragum*.
- Competitive species indicative of under-grazing, particularly bracken *Pteridium aquilinum*, purple moor-grass *Molinia caerulea* and western gorse *Ulex gallii* will be kept in check.
- 70% of wet heath will be “good condition” wet heath.
- The wet heath supports viable populations of marsh gentian at Cors Erddreiniog
- The wet heath contributes to the support of a viable meta-population of marsh fritillary
- All factors affecting the achievement of these conditions are under control.

<b>Performance indicators for feature condition</b>		
<b>Attribute</b>	<b>Attribute rationale and other comments</b>	<b>Specified limits</b>
<b>A1. Extent</b>	Wet heath is found at Cors Erddreiniog and Cors Goch. These areas should be maintained and there is some limited potential for expansion	<i>Upper limit:</i> Not set <i>Lower limit</i> 3.8% of the SAC
<b>A2. Condition</b>	Based on the Standard CSM attribute for this feature. Modified according to site-specific requirements.  Good condition wet heath is defined as: characterised by vegetation where at each sample point: Ericoid cover is 25-90% <i>Erica tetralix</i> is present with one other ericoid The cover of <i>Molinia caerulea</i> and <i>Ulex gallii</i> are <60% <i>Sphagnum</i> spp. plus two of the following are present: <i>Narthecium ossifragum</i> , <i>Viola lactea</i> , <i>Anagallis tenella</i> , <i>Polygala serpyllifolia</i> , <i>Serratula tinctoria</i> , <i>Dactylorhiza maculata</i> , <i>Pedicularis sylvatica</i> , <i>Dactylorhiza maculata</i> , <i>Carex ssp</i> and <i>Succisa pratensis</i>	<i>Upper limit:</i> none set  <i>Lower limit:</i> 70% of the Wet Heath vegetation is in good condition, . Scrub species and <i>Ulex europeaus</i> are mostly absent
<b>Performance indicators for factors affecting the feature</b>		
<b>Factor</b>	<b>Factor rationale and other comments</b>	<b>Operational Limits</b>
<b>F1. Livestock grazing</b>	The wet heath vegetation is maintained by appropriate grazing practices. Without an appropriate grazing regime, the wet heath would become rank and eventually turn to scrub and woodland.	Light grazing by animals - ideally cattle from April – November and ponies throughout year - is essential for maintaining the wet heath.
<b>F2. Burning</b>	Burning can damage the bryophyte layer and encourages a vigorous re-growth of more competitive, fire-resistant species like purple moor-grass. It may cause wet heath to turn into dry heath in this way. Burning should be used sparingly only to bring land into condition for grazing, and follow-up grazing must be assured	<i>Upper limit:</i> 10% of wet heath burnt in any six year period <i>Lower limit:</i> none set
<b>F3. Water Quality</b>	The wet heath on most areas in the SAC is kept moist by precipitation and seepages. It is not generally subject to run-off from agricultural activities such as fertiliser application. It could still be affected by airborne pollutants such as lime drift from adjoining farmland or nitrous oxides from vehicle exhausts	<i>Upper limit:</i> 17kg N per ha per year  pH =<6  <i>Lower limit:</i> none set pH =>3.5
<b>F4. Water Quantity</b>	Substrate should be wet enough to encourage development of damp bryophyte layer including e.g. <i>Sphagnum</i> species, <i>Leucobryum glaucum</i> , etc.	<i>Upper limit:</i> No more than occasional surface standing water in winter.  <i>Lower limit:</i> substrate is permanently damp.

#### 4.6 Conservation Objective for Feature 6: European dry heaths

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

- Dry heath covers at least 1.2% ha of the site
- The following plants are common in the dry heath: heather *Calluna vulgaris*; bell heather *Erica cinerea*, and western gorse *Ulex galii*.
- Competitive species indicative of under-grazing or over-frequent burning, particularly bracken *Pteridium aquilinum*, purple moor-grass *Molinia caerulea* and European gorse *Ulex europeaus* are not abundant.
- Competitive species indicative of agricultural improvement such as ryegrass *Lolium perenne*, Yorkshire fog *Holcus lanatus*, nettles, *Urtica dioica*, are no more than rare or occasional.
- 70% of dry heath will be “good quality” dry heath.
- Invasive exotic species, e.g. Rhododendron are absent
- All factors affecting the achievement of these conditions are under control.

<b>Performance indicators for feature condition</b>		
<b>Attribute</b>	<b>Attribute rationale and other comments</b>	<b>Specified limits</b>
<b>A1. Extent</b>	Dry heath is found at Cors Erddreiniog and Cors Goch. These areas should be maintained and there is some limited potential for expansion	<i>Upper limit:</i> Not set <i>Lower limit</i> 1.2% of the SAC
<b>A2. Condition</b>	Based on the Standard CSM attribute for this feature. Modified according to site specific requirements.  Good condition dry heath is defined as: characterised by vegetation where at each sample point: Ericoid cover is 25-90% <i>Erica cinerea</i> or <i>Calluna vulgaris</i> is present. The cover of <i>Molinia caerulea</i> and <i>Ulex galii</i> are <60% Two of the following are present: <i>Viola lactea</i> , <i>Polygala serpyllifolia</i> , <i>Ulex galii</i> , <i>Scilla verna</i> , <i>Festuca ovina</i> , <i>F rubra</i> , <i>Galium saxatile</i> , <i>Potentilla erect</i> , <i>Danthonia decumbens</i> , <i>Anthoxanthum odoratum</i> , <i>Hypnum cupressiforme</i> , <i>Cladonia spp.</i> ,	<i>Upper limit:</i> none set  <i>Lower limit:</i> 70% of the dry heath vegetation is in good condition, . Scrub species and <i>Ulex europeaus</i> are mostly absent
<b>Performance indicators for factors affecting the feature</b>		
<b>Factor</b>	<b>Factor rationale and other comments</b>	<b>Operational Limits</b>
<b>F1. Livestock grazing</b>	The dry heath vegetation is maintained by appropriate grazing practices. Without an appropriate grazing regime, the heath would become rank and eventually turn to scrub and woodland.	Light grazing by animals - ideally cattle from April – November and ponies throughout year - is essential for maintaining the heath.
<b>F2. Burning</b>	Burning can damage invertebrate fauna and encourages gorse at the expense of other components. It should be used sparingly to bring land into condition for grazing, and follow-up grazing must be assured	<i>Upper limit:</i> 30% of heath burnt in any six year period <i>Lower limit:</i> none set

<b>F3. Water Quality</b>	Nutrients in water or in aerial deposition can change the nature of the habitat by encouraging more competitive species to survive.	<i>Upper limit:</i> 17kg N per ha per year pH =<6  <i>Lower limit:</i> none set pH =>3.5
--------------------------	---	--

#### 4.7 Conservation Objective for Feature 7: *Vertigo geyeri*

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

- *Vertigo geyeri* is frequent in suitable habitat at Cors Erddreiniog and Waun Eurad Sections:
- There are abundant areas of flushed fen grassland (M13 / feature 2) with sedge/moss lawns 5-15cm tall, containing species such as *Carex viridula* subsp. *brachyrrhyncha*, *Pinguicula vulgaris*, *Briza media*, *Equisetum palustre*, *Juncus articulatus* and the mosses *Drepanocladus revolvens*, *Campylium stellatum*, with scattered tussocks of *Schoenus nigricans* no greater than 80cm tall.
- Soils are saturated schoenus tussocks lower than 80cm

<b>Performance indicators for feature condition</b>		
<b>Attribute</b>	<b>Attribute rationale and other comments</b>	<b>Specified limits</b>
<b>A1. Size of feature population</b>	<i>V geyeri</i> occurs in at Cors Erddreiniog and Waun Eurad.  Further survey is required to clarify the distribution of the snail on Cors Erddreiniog and this Objective may need to be revised in light of that information.	<i>Upper limit:</i> no limit  <i>Lower limit:</i> In 50m transects, through good and /suitable habitat, sampled at 5m intervals, adult or sub-adult snails are present in 50% of samples.
<b>A2. Extent of suitable habitat</b>	Flushed fen grassland with sedge/moss lawns 5-15cm tall, containing species such as <i>Carex viridula</i> subsp. <i>brachyrrhyncha</i> , <i>Pinguicula vulgaris</i> , <i>Briza media</i> , <i>Cirsium dissectum</i> , <i>Equisetum palustre</i> , <i>Juncus articulatus</i> and the mosses <i>Drepanocladus revolvens</i> , <i>Campylium stellatum</i> , with scattered tussocks of <i>Schoenus nigricans</i> no greater than 80cm tall. During sampling the water table should be between 0- 5cm of the soil surface, but not above ground level.	<i>Upper limit:</i> none  <i>Lower limit:</i> Present extent
<b>Performance indicators for factors affecting the feature</b>		
<b>Factor</b>	<b>Factor rationale and other comments</b>	<b>Operational Limits</b>
<b>F1. Livestock grazing</b>	See Feature 2	See feature 2
<b>F2. Water quantity</b>	During sampling the water table should be between 0-5cm below the soil surface, but not above ground level.	See feature 2
<b>F3. Water quality</b>	See feature 2	See feature 2

#### 4.8 Conservation Objective for Feature 8: *Coenagrion mercuriale*

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

- Population size is stable or increasing
- The population occupies at least 3 distinct management units
- The total area of good breeding habitat does not fall below 1000m<sup>2</sup>
- Seepages and shallow runnels at Nant Isaf will be clear, pollution free and will support good numbers of native aquatic plants.
- The population of southern damselflies on the site (allowing for normal annual fluctuations) is maintained or increases.
- Species indicative of drainage or agricultural modification, such as yorkshire fog *Holcus lanatus*, bramble *Rubus spp.*, nettle *Urtica dioica* are largely absent
- Alkaline Fen habitat exhibits a diverse age and height structure across the site (tussocks are undamaged and 20% short grazed, 50% mature – 30% in between incl bare ground
- Scrub species such as willow *Salix spp* and birch *Betula pubescens* are largely absent from the alkaline fen habitat
- Rhododendron spp. is absent from the feature.
- Appropriate grazing is managed across 100% of the site
- Standing or running surface water is present between tussocks throughout the year, and visible over 30% of the tussock covered area.
- All Hydrological (diffuse, surface and sub-surface) pathways (inputs and outputs) should be restored and/or intact (includes ditch infilling, blocking, diversion and re-engineering)
- Water quality is appropriate to the needs of the vegetation and species.
- All factors affecting the achievement of the foregoing conditions are under control.

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
<b>A1.</b> Size of population	Breeding populations are recorded by reference to the number of adult males per square metre of good breeding habitat, in at least one year out of six	<i>Upper limit:</i> None set  <i>Lower limit:</i> at least 1 male per 10 square metres of breeding habitat across the site
<b>A2.</b> Distribution of population	Southern damselfly presently occurs in 2 management units: Nant Isaf Spring Flushes and at Cors Nant Isaf, but is susceptible to changes in management or stochastic events. Suitable habitat exists at Cors Goch and other locations in Cors Errdreiniog.	<i>Upper limit :</i> none set <i>Lower limit:</i> breeding occurs regularly in 3 management units.
<b>A3.</b> Extent of good breeding habitat	Good breeding habitat comprises shallow running water in alkaline fen. Distinct patches of oviposition plants ( <i>Menyanthes trifoliata</i> , <i>Hypericum elodes</i> , <i>Potamogeton coloratus</i> and <i>Apium nodiflorum</i> ) are present as more than 20% cover over areas greater than 0.5 square metres and no more than 20% of the total cover is taller than 15cm above water level. Patches must occur where there is evidence of flow (ie. streams, seepages and flushes) and are regarded as sub-optimal or insignificant	<i>Upper limit:</i>  <i>Lower limit:</i> At least 500 square metres of breeding habitat present at Nant Isaf Spring and Cors Nant Isaf <i>Target:</i> At least 500m (combined) of suitable habitat at other locations within the SAC



	when present in standing water or basin mire habitats.	
<b>Performance indicators for factors affecting the feature</b>		
<b>Factor</b>	<b>Factor rationale and other comments</b>	<b>Operational Limits</b>
<b>F1. Livestock grazing</b>	Without an appropriate grazing regime, the habitat would become dominated by rank, monospecific swards. A richer biota is achieved by light grazing by heavy livestock to maintain an open sward and shallow open water channels. Light grazing by cattle and ponies between April and October each year is essential in maintaining the swards, runnels and bare ground necessary for the damselfly. Light summer grazing is defined as that suitable to open up the sward and encourage species and structural diversity although dependant on other factors (eg weather, nutrient input). On average it will be cattle and/or ponies at a rate of 0.4 LSU/ha for the period April to October)	Upper limit:  Lower limit: 100% of the alkaline fen within southern damselfly breeding locations are subject to light summer grazing by cattle and/or ponies at least 4 in every 5 years.
<b>F2. Water quantity</b>	The damselfly needs a habitat that is maintained through high water levels and water quality. This is determined by the balance of inputs – springwater, groundwater seepage, rainfall etc. There is a requirement for shallow flowing open water channels with adequate suitable vegetation	Upper limit: ponded (still) surface water is absent for most of the year in areas of good quality habitat.  Lower limit: Permanent flowing water channels dominate 1000m <sup>2</sup> of good quality habitat.
<b>F3. Water quality</b>	Water quality can be affected by point source pollution diffuse runoff from surrounding land and by atmospheric inputs.	Upper limit: <ul style="list-style-type: none"> <li>• &lt;2.5mg/l N</li> <li>• &lt;100ug/l Total P</li> </ul> Lower Limit: none set

#### **4.9 Conservation Objective for Feature 9: *Euphydrias* (*Eurodryas*, *Hypodryas*) *aurinia***

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

- The site supports a sustainable meta population of the marsh fritillary.
- The population is viable in the long term, (acknowledging the extreme population fluctuations of the species).
- Habitats on the site are in optimal condition to support the metapopulation.
- At least 6% (approximately 30ha) of the total site area is marshy grassland or wet heath suitable for supporting marsh fritillary, with Devil's-bit scabious *Succisa pratensis* present and only a low cover of scrub.
- At least 40% of this 30ha is good marsh fritillary breeding habitat, dominated by purple moor-grass *Molinia caerulea*, with *S. pratensis* abundant throughout and a vegetation height of 10-20cm over the winter period.
- Areas of good marsh fritillary habitat are scattered over several management units.

- Off site habitats that function as stepping stone or corridors located between SAC compartments will be maintained for migration, dispersal, foraging and genetic exchange purposes
- All factors affecting the achievement of the foregoing conditions are under control.

Performance indicators for feature condition		
Attribute	Attribute rationale and other comments	Specified limits
<b>A1.</b> Density of larval webs Marsh fritillary butterfly <i>Euphydryas</i> ( <i>Eurodryas</i> , <i>Hypodryas</i> ) <i>aurinia</i>	Targets set are based on generic guidance (Fowles, 2004)	<i>Upper limit:</i> Not required  <i>Lower limit:</i> In one year in six the number of larval webs is estimated to be: >200 per hectare of Good condition habitat.
<b>A2.</b> Extent of Marsh fritillary butterfly Habitat ( <i>Eurodryas</i> , <i>Hypodryas</i> ) <i>aurinia</i>	<p>There is limited suitable habitat available in the landscape surrounding Corsydd Mon, therefore it is vital that habitat within the SAC is available to Marsh Fritillaries, to ensure their long-term survival.</p> <p>Good condition habitat: Grassland, with <i>Molinia</i> abundant, where the vegetation height is within the range of 10 to 20 cm, and where, for at least 80% of sampling points, <i>Succisa pratensis</i> is present within a 1 m radius. Scrub (&gt;0.5 metres tall) covers no more than 10% of area.</p> <p>Suitable Habitat: Stands of grassland where <i>Succisa pratensis</i> is present at lower frequencies but still widely distributed (&gt;5% of sampling points) throughout the habitat patch and in which scrub (&gt;0.5 metre tall) covers no more than 25% of area. Or areas of taller grassland with <i>Succisa pratensis</i>. Alternatively, <i>Succisa</i> may be present at high density in close-cropped swards</p> <p>Efforts should continue to influence the available habitat beyond the SAC boundary to support the metapopulation.</p>	<i>Upper limit:</i> Not required  <i>Lower limit:</i> 30 hectares of available marsh fritillary habitat (marshy grassland, and wet heath) including 10 hectares of Good Condition marsh fritillary habitat.
<b>A3.</b> Habitat patches	<p>Metapopulations dynamics dictate that habitat patches should be separated to permit local extinction in response to predator / parasite pressures and subsequent re-colonisation between isolated colonies and core populations.</p> <p>Suitable habitat should be separated by</p>	<i>Upper limit:</i> none set  <i>Lower limit:</i> All 7 component sites should contain suitable habitat patches. Larger sites (Corsydd Goch, Erddreiniog & Bodeilio) should each contain at least 3 patches of >500m <sup>2</sup> each.

	>500m within the same component site or be on different component sites to constitute separate patches.	
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
<b>F1.</b> Livestock grazing	Without an appropriate grazing regime, the grassland will continue to become rank and eventually turn to scrub and woodland. Light grazing by cattle and ponies between April and November each year is essential in maintaining the marshy grassland communities.	See Feature 2, 4, 5.
<b>F2.</b> Burning	Controlled burning is used to encourage appropriate grazing, but extensive or over frequent burns can destroy marsh fritillary populations. Only small patches should ever be burnt and only as part of a grazing regime. Good quality habitat, by definition, does not require burning.	<i>Upper limit:</i> 10% of the suitable habitat in any one year. None of the good condition habitat.  <i>Lower Limit:</i> None

#### **4.10 Conservation Objective for Feature 10: Triturus cristatus**

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

- Great crested newts will be present on the site
- At least 3 display/breeding ponds occur throughout the entire site
- Great crested newt larvae will be found in 2 or more of the breeding ponds
- All of display/breeding ponds on the site will have a water depth of 10cm or more during the normal summer months.
- Native macrophytes will cover at least half of the pond surface yet some of the water surface will still remain open.
- Aquatic marginal vegetation will be present around the ponds
- Breeding/display ponds will not be heavily shaded by surrounding vegetation
- Algal blooms and surface sheens will be absent from display/breeding ponds
- Fish will be absent from breeding/display ponds which support great crested newts
- Only small numbers of water and wildfowl will be seen on the ponds
- The terrestrial habitat surrounding breeding ponds will provide refuge, foraging and hibernacula areas and corridors which will aid the dispersal of great crested newts
- Off site habitats that function as stepping stone or corridors located between SAC compartments will be maintained for migration, dispersal, foraging and genetic exchange purposes
- Non-native aquatic species will be no more than rare or occasional at any location
- All factors affecting the achievement of the foregoing conditions are under control.

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
<b>A1.</b> . Extent and distribution of adult great crested newts <i>Triturus</i>	Night counts of adults during the breeding season, or egg counts  There is a lack of data at present, but	<i>Upper limit:</i> n/a <i>Lower limit:</i> 10 adults or 10 eggs per pond in 3 ponds

<i>cristatus</i> in breeding ponds	GCN are recorded on Cors Erddreiniog (Bryn Mwcog and Coed Du heath) and Cors Goch, but breeding ponds are not well known. [Monitoring should take place each year to allow for any climatic variation between years]	for at least four years in a six year reporting cycle
<b>A2.</b> Recruitment	Recruitment is required to maintain a viable population.  [A breeding pond is defined as a pond in which <i>T. cristatus</i> is/or is likely to conduct egg laying, and successful metamorphosis once in every 4 years]	<i>Upper limit:</i> Not required <i>Lower limit:</i> 2 breeding ponds with evidence of recruitment (eggs or young adults) 1 year in 4.
<b>Performance indicators for factors affecting the feature</b>		
<b>Factor</b>	<b>Factor rationale and other comments</b>	<b>Operational Limits</b>
<b>F1.</b> . Extent of breeding/display ponds	Number and distribution of pools to achieve adequate and secure population	<i>Upper limit:</i> not set  <i>Lower limit:</i> 3 ponds total on 2 component sites.
<b>F2.</b> Macrophyte Plant cover	Based on the amount of plant material required for egg laying and the area of open water required for displaying .	<i>Upper limit:</i> 60 % of display/breeding ponds will have 75% native macrophyte cover across  <i>Lower limit:</i> 60 % of display/breeding ponds will have 50% native macrophyte cover
<b>F3.</b> Presence of pollution	Based on the water conditions that are appropriate for successful breeding.	<i>Upper limit:</i> No surface sheens and algae blooms on display/breeding ponds  <i>Lower limit:</i> Not required
<b>F4.</b> Extent of shading	Based on the water conditions that are appropriate for successful breeding,  [Pond shading: % estimated for any tree/shrub cover greater than 1 m, for trees and shrubs up to 5m from a pond. Shading estimated for trees/shrubs casting shadow over a pond between 10am and 4pm]	<i>Upper limit:</i> 20 % shading on the southern margin or 60 % of the total pond margin shaded on breeding/display ponds  <i>Lower limit:</i> Not set
<b>F5.</b> Extent and quality of terrestrial habitat	Based on the habitat required to provide foraging areas, hibernacula and connectivity for dispersal.	<i>Upper limit:</i> Not set  <i>Lower limit:</i> Presence of terrestrial habitat within a 250m radius from a breeding/display pond providing refuge areas, i.e. shady areas within the rough/tussocky grassland; scrub, fallen deadwood; underground crevices, tree root systems, mammal burrows, rubble piles, and/or old walls.
<b>F6</b> Dispersal	Dispersal corridors should be maintained	<i>Upper limits</i>

routes	Assessed visually. Baseline from 2006 aerial photographs.	No new barriers to genetic movement without appropriate underpass or similar arrangement.  <i>Lower limit</i> There should be no significant loss, or fragmentation, of hedgerows and other dispersal corridors.
<b>F7.</b> Presence of fish	Fish are detrimental to the great crested newt population. Occasional drought episodes assist the removal of fish from shallow breeding pools.	<i>Upper limit:</i> No fish species (including sticklebacks) present in any breeding ponds  <i>Lower limit:</i> Not required
<b>F8.</b> Presence of non-native aquatic plant species, especially <i>Crassula helmsii</i>	Many alien aquatic species can smother pools, displacing the desired species.	<i>Upper limit:</i> No more than “occasional” occurrence in breeding / display pools.  <i>Lower limit:</i> Not required <i>Target:</i> absent.

---

#### **4.11 Conservation Objective for Feature 11: *Lutra lutra*.**

---

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

- The population of otters using the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within and adjacent to the SAC
- The SAC will have habitat, including riparian trees and vegetation and wetlands, to help support the otter population in the long term
- The site contributes food (including eels, other fish, amphibians etc) to help support a resident otter population.
- All factors affecting the achievement of the foregoing conditions are under control.

#### **Performance indicators for feature 4.11**

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

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rational and other comments</i>	<i>Specified limits</i>
<b>A1.</b> Presence	Presence of an otter population can be deduced by regular presence of fresh spraint.  This attribute will be determined through examination of sprainting activity.	Sprainting activity and density:  <i>Upper limit:</i> None set  <i>Lowest limit:</i> A minimum of 5 positive sprainting records over 12 months

<b>A2.</b> Actual and potential breeding sites	Potential sites ie artificial holts in Corsydd Errdreiniog Goch etc and areas of dense secluded undergrowth should be identified.	Lower Limit: There should be no reduction or decline in the number or quality of identified actual or potential breeding sites. Upper Limit: None set.
<b>Performance indicators for factors affecting the feature</b>		
<b>F1.</b> Water quality	River Ecosystem Classification. (EA classification).	To maintain and restore RE1 across catchment with no increase in pollutants potentially toxic to otters
<b>F2.</b> Water quality	Refer to Performance indicators for Features 1, 2 and 3	
<b>Ecosystem structure and function</b>		
<b>F3.</b> Food availability	Studies have indicated that the viability of an otter population partially relates to the viability of its food sources Otters depend on food that comes from a range of aquatic environments, such as small streams and marshes (Chanin 2003a). Fish make up the majority of the otter diet (often >75%), though amphibians and crustaceans are also constituents. Eels are particularly favoured. At times, an alternative prey, such as frogs, can assume a greater importance than fish.	<i>Upper limit:</i> None set  <i>Lower limit:</i> Presence of fish and amphibians.
<b>F4.</b> Riparian habitat	Riparian habitat outwith the SAC is essential in maintaining the viability of the otter population	No overall permanent decrease and no overall loss in sensitive areas.
<b>F5.</b> Dispersal routes	Dispersal corridors should be maintained Assessed visually. Baseline from 2006 aerial photographs.	<i>Upper limits</i> No new barriers to movement without appropriate underpass or similar arrangement.  <i>Lower limit</i> There should be no significant loss, or fragmentation, of hedgerows and other dispersal corridors.
<b>Negative indicators</b>		
<b>F6.</b> Anthropogenic mortality	Road deaths have been clearly noted as a primary threat to the otters conservation status across Wales. Potential blackspots linking SAC sub sites exist and future mitigation needs to take account of this The safe movement and dispersal of otters around the SAC is facilitated by the provision of linkages between sites, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc at road bridges and other artificial barriers.	<i>Upper limit:</i> No increase in numbers of recorded otter road deaths (approx 1/year on Ynys Mon)  <i>Lower limit:</i> none set
<b>F7.</b> Disturbance	Otters are sensitive to human disturbance and especially to sudden changes in activity. They are particularly sensitive to disturbance by dogs. The female otter is particularly sensitive to disturbance when she has cubs.	No significant change to bank side usage, no significant development, particularly in sensitive areas.

---

#### 4.12 Conservation Objective for Feature 12: Neutral grassland

---

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

Objectives for this SSSI feature will be supplied later.

---

#### 4.13 Conservation Objective for Feature 13: Calcareous grassland

---

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

Objectives for this SSSI feature will be supplied later.

---

#### 4.14 Conservation Objective for Feature 14: Marshy grassland

---

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

- Objectives for this SSSI feature will be supplied later.

---

#### 4.15 Conservation Objective for Feature 15: Vascular plant assemblage

---

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

- All the components of the assemblage are present on the site
- All the component species comprise viable populations of at least 200 individuals or at least 100m<sup>2</sup> of stoloniferous or tufted species (e.g. *Potamogeton coloratus*)
- All the component species are found in at least 3 distinct loci.
- All the factors affecting the achievement of the 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>
<b>A1.</b> Presence of all species	The assemblage <i>Gentiana pneumonanthe Taraxacum palustre, Dactylorhiza traunsteineri, Potamogeton coloratus, Viola lactea, Antennaria dioica, Platanthera bifolia, Ophrys insectifera, Selaginella selaginoides</i> indicates the floristic richness of the site. Loss of one or more components is likely to indicate other biological losses	<i>Upper limit:</i> n/a  <i>Lower limit</i> All component species of assemblage present
<b>A2.</b> Number / extent of population	Where individual plants are distinguishable, a population of 200 is deemed a desirable minimum for genetic integrity. Where vegetative growth predominates (e.g. <i>Potamogeton</i> spp) an estimated area of >100m <sup>2</sup> in total is considered desirable.	<i>Upper limit:</i> n/a  <i>Lower limit:</i> 200 plants/ species or 100m <sup>2</sup> for stoloniferous species.
<b>A3.</b> Each species in >3 loci	Species in restricted locations are vulnerable to damage or stochastic extinction	<i>Upper limit</i> n/a  <i>Lower limit</i> 3 loci/spp.

<b><i>Performance indicators for factors affecting the feature</i></b>		
<b><i>Factor</i></b>	<b><i>Factor rationale and other comments</i></b>	<b><i>Operational Limits</i></b>
<b>F1.</b> Livestock grazing	Varies according to ecological requirements of each species	<i>Upper limit:</i> tba <i>Lower limit:</i> tba
<b>F2.</b> Water quantity	Varies according to ecological requirements of each species	<i>Upper limit:</i> tba <i>Lower limit:</i> tba
<b>F3.</b> Water quality	Varies according to ecological requirements of each species	<i>Upper limit:</i> tba <i>Lower limit:</i> tba

---

#### **4.16 Conservation Objective for Feature 16: *Gentiana pneumonanthe***

---

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

- Colonies comprise viable populations of at least 200 individuals
- Flowering and seed setting occur in most years
- Colonies are found in at least 3 distinct loci within the SAC.
- All factors affecting the achievement of the foregoing conditions are under control

<b><i>Performance indicators for feature condition</i></b>		
<b><i>Attribute</i></b>	<b><i>Attribute rationale and other comments</i></b>	<b><i>Specified limits</i></b>
<b>A1.</b> Extent / distribution	At least 3 colonies / loci should be present to ensure security against stochastic events / damage.	<i>Upper limit:</i> none <i>Lower limit:</i> 3 colonies
<b>A2.</b> Numbers	Where individual plants are distinguishable, a population of 200 / colony is deemed a desirable minimum for genetic integrity.	<i>Upper limit:</i> none <i>Lower limit:</i> 200 plants
<b><i>Performance indicators for factors affecting the feature</i></b>		
<b><i>Factor</i></b>	<b><i>Factor rationale and other comments</i></b>	<b><i>Operational Limits</i></b>
<b>F1.</b> Livestock grazing	Light grazing by cattle or ponies is preferred to maintain open conditions. Avoid summer grazing when inflorescences are vulnerable.	<i>Upper limit:</i> 0.5LSU/ha <i>Lower limit:</i> 0.05LSU/ha
<b>F2.</b> Water quantity	Soils should be moist but not generally flooded.	<i>Upper limit:</i> at soil surface <i>Lower limit:</i> <25cm below surface
<b>F3.</b> Water quality	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>F4.</b> Burning	Controlled burning can maintain open conditions for this species and assist seed germination. Excessive burning may increase dominance of <i>Ulex</i> spp at the long-term expense of the target species. Controlled burning should be part of an appropriate grazing regime.	<i>Upper limit:</i> no more than 10% of habitat to be burnt over a 6 year period. <i>Lower limit:</i> none

---

#### **4.17 Conservation Objective for Feature 17: *Antennaria dioica***

---

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

- Colonies comprise viable populations of at least 200 individuals
- Flowering and seed setting occur in most years
- Colonies are found in at least 3 distinct loci within the SAC.
- All factors affecting the achievement of the foregoing conditions are under control



<b>Performance indicators for feature condition</b>		
<b>Attribute</b>	<b>Attribute rationale and other comments</b>	<b>Specified limits</b>
<b>A1.</b> Extent / distribution	At least 3 colonies / loci should be present to ensure security against stochastic events / damage.	Upper limit: none Lower limit 3 colonies
<b>A2.</b> Numbers	Where individual plants are distinguishable, a population of 200 / colony is deemed a desirable minimum for genetic integrity	Upper limit none Lower limit: 200 / colony
<b>Performance indicators for factors affecting the feature</b>		
<b>Factor</b>	<b>Factor rationale and other comments</b>	<b>Operational Limits</b>
<b>F1.</b> Livestock grazing	To be determined	Upper limit: Lower limit:
<b>F2.</b> Water quantity	To be determined	Upper limit: Lower limit:
<b>F3.</b> Water quality	To be determined	Upper limit: Lower limit:

#### **4.18 Conservation Objective for Feature 18: Potamogeton coloratus**

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

- Colonies comprise viable populations covering at least 20m<sup>2</sup>.
- Flowering and seed setting occur in most years
- Colonies are found in at least 3 distinct loci within the SAC.
- All factors affecting the achievement of the foregoing conditions are under control.

<b>Performance indicators for feature condition</b>		
<b>Attribute</b>	<b>Attribute rationale and other comments</b>	<b>Specified limits</b>
<b>A1.</b> Extent / distribution	At least 3 colonies / loci should be present to ensure security against stochastic events / damage.	Upper limit: none Lower limit 3 colonies
<b>A2.</b> Numbers	Where vegetative growth predominates (e.g. Potamogeton spp) an estimated area of >20m <sup>2</sup> per colony is considered desirable.	Upper limit none Lower limit: >20m <sup>2</sup> per colony
<b>Performance indicators for factors affecting the feature</b>		
<b>Factor</b>	<b>Factor rationale and other comments</b>	<b>Operational Limits</b>
<b>F1.</b> Livestock grazing	To be determined	Upper limit: Lower limit:
<b>F2.</b> Water quantity	To be determined	Upper limit: Lower limit:
<b>F3.</b> Water quality	To be determined	Upper limit: Lower limit:

#### 4.19 Conservation Objective for Feature 19: Taraxacum palustre

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

- Colonies comprise viable populations of at least 200 individuals
- Flowering and seed setting occur in most years
- Colonies are found in at least 3 distinct loci within the SAC.
- All factors affecting the achievement of the foregoing conditions are under control

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
<b>A1.</b> Extent / distribution	At least 3 colonies / loci should be present to ensure security against stochastic events / damage.	<i>Upper limit:</i> none <i>Lower limit:</i> 3 colonies
<b>A2.</b> Numbers	Where individual plants are distinguishable, a population of 200 is deemed a desirable minimum for genetic integrity	<i>Upper limit:</i> none <i>Lower limit:</i> 200 / colony
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
<b>F1.</b> Livestock grazing	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>F2.</b> Water quantity	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>F3.</b> Water quality	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>

#### 4.20 Conservation Objective for Feature 20: Microglossum olivaceum

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

- Colonies comprise viable populations of at least 200 individuals
- Flowering and seed setting occur in most years
- Colonies are found in at least 3 distinct loci within the SAC.
- All factors affecting the achievement of the foregoing conditions are under control

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
<b>A1.</b> Extent / distribution	Where individual plants are distinguishable, a population of 200 fruiting bodies / colony is deemed a desirable minimum for genetic integrity	<i>Upper limit:</i> none <i>Lower limit:</i> 200
<b>A2.</b> Numbers	Where individual plants are distinguishable, a population of 200 fruiting bodies / colony is deemed a desirable minimum for genetic integrity.	<i>Upper limit:</i> none <i>Lower limit:</i> 200 / colony
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
<b>F1.</b> Livestock grazing	This short grassland species requires regular grazing. Rabbit grazing may be a factor in maintaining this habitat.	<i>Upper limit:</i> <i>Lower limit:</i>
<b>F2.</b> Water quantity	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>

<b>F3. Water quality</b>	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
--------------------------	------------------	--

#### 4.21 Conservation Objective for Feature 21: *Ophrys insectifera* (fly orchid)

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

- Colonies comprise viable populations of at least 200 individuals
- Flowering and seed setting occur in most years
- Colonies are found in at least 3 distinct loci within the SAC.
- All factors affecting the achievement of the foregoing conditions are under control

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
<b>A1.</b> Extent / distribution	Where individual plants are distinguishable, a population of 200/ colony is deemed a desirable minimum for genetic integrity	<i>Upper limit:</i> <i>Lower limit</i> 200
<b>A2.</b> Numbers	Where individual plants are distinguishable, a population of 200 is deemed a desirable minimum for genetic integrity	<i>Upper limit</i> none <i>Lower limit:</i> 200 / colony
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
<b>F1.</b> Livestock grazing	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>F2.</b> Water quantity	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>F3.</b> Water quality	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>F4</b> Controlled burning	Controlled burning can initiate open conditions for this species as part of an appropriate grazing regime.	<i>Upper limit:</i> no more than 10% of habitat to be burnt over a 6 year period. <i>Lower limit:</i> none

#### 4.22 Conservation Objective for Feature 22: Stonewort assemblage

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

- All the components of the assemblage are present on the site
- All the component species are found in at least 3 distinct loci.
- All factors affecting the achievement of the foregoing conditions are under control

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
<b>A1.</b> Extent	To be determined	<i>Upper limit:</i> <i>Lower limit</i>
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
<b>F1.</b> Livestock grazing	Light poaching of pool edges can be helpful to some stoneworts, maintaining open conditions free of competition.	<i>Upper limit:</i> <i>Lower limit:</i>
<b>F2.</b> Water quantity	Aquatic conditions are essential	<i>Upper limit:</i> <i>Lower limit:</i>

<b>F3.</b> Water quality	Very high water quality (low nutrient status) is thought to be necessary for good stonewort flora.	<i>Upper limit:</i> <i>Lower limit:</i>
--------------------------	--	--

#### 4.23 Conservation Objective for Feature 23: *Nitella tenuissima*

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

- Colonies comprise patches of at least 1m<sup>2</sup>
- Colonies are found in at least 3 distinct loci within the SAC.
- All factors affecting the achievement of the foregoing conditions are under control

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
<b>A1.</b> Extent / distribution	Occurs at Cors goch	<i>Upper limit:</i> none <i>Lower limit</i> 3 colonies
<b>A2.</b> Numbers / size	Vegetative reproduction evident. Suggested minimum of 5m <sup>2</sup> per colony	<i>Upper limit</i> none <i>Lower limit</i> 5m <sup>2</sup> per colony
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
<b>F1.</b> Livestock grazing	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>F2.</b> Water quantity	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>F3.</b> Water quality	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>

#### 4.2.4 Conservation Objective for Feature 24: Peatland invertebrate assemblage

Objectives for this SSSI feature will be supplied later.

#### 4.24 Conservation Objective for Feature 25: *Stratiomys chamaeleon* (soldier fly)

To maintain the soldierfly *Stratiomys chamaeleon* in favourable condition where:

- At least 3 colonies of the species occur within the SAC
- Viable populations occur on each colony
- Adequate habitat exists to support the colonies

All factors affecting the achievement of the foregoing conditions are under control

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
<b>A1.</b> Population		<i>Upper limit:</i> n/a  <i>Lower limit</i> >30 adults are recorded on Waun Eurad Cors Bodeilio and Cors Erddreiniog colonies, and:

		at least 1 larva is found within the main seepage zones within the reporting cycle.
<b>A2. Condition of habitat</b>	For the larvae, there should be areas of calcareous seepages that support areas of bare or sparsely-vegetated substrate. A 1m <sup>2</sup> patch should typically contain less than 40% cover of low vegetation such as brown mosses, short sedges, <i>Ranunculus flammula</i> , <i>Menyanthes trifoliata</i> , <i>Schoenus nigricans</i> and <i>Juncus subnodulosus</i> . For adults, there should be abundant nectar sources such as <i>Heracleum sphondylium</i> , <i>Oenanthe lachenalii</i> and <i>Angelica sylvestris</i> .	<i>Upper limit:</i> n/a <i>Lower limit:</i> there are a minimum of 25 x 1m <sup>2</sup> open patches within the main seepage zone at each site where the species occurs.  <i>Upper limit:</i> n/a <i>Lower limit:</i> there are a minimum of 5 stands of <i>Heracleum sphondylium</i> , each stand supporting more than 30 flowering heads, and flowering <i>Oenanthe lachenalii</i> is present in the mire.
<b>Performance indicators for factors affecting the feature</b>		
<b>Factor</b>	<b>Factor rationale and other comments</b>	<b>Operational Limits</b>
<b>F1. Livestock grazing</b>	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>F2. Water quantity</b>	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>F3. Water quality</b>	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>

#### 4.26 Conservation Objective for Feature 26: *Limnephilus tauricus* (caddis fly)

Objectives for this SSSI feature will be supplied later.

<b>Performance indicators for feature condition</b>		
<b>Attribute</b>	<b>Attribute rationale and other comments</b>	<b>Specified limits</b>
<b>A1. Extent</b>	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>A2. Condition</b>	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>Performance indicators for factors affecting the feature</b>		
<b>Factor</b>	<b>Factor rationale and other comments</b>	<b>Operational Limits</b>
<b>F1. Livestock grazing</b>	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>F2. Water quantity</b>	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>F3. Water quality</b>	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>

---

#### 4.25 Conservation Objective for Feature 27: *Hirudo medicinalis*

---

To maintain the medicinal leech *Hirudo medicinalis* in favourable condition where:

- At least 3 colonies of the species occur within the SAC
- Viable populations occur on each colony
- Adequate habitat exists to support the colonies
- All factors affecting the achievement of the foregoing conditions are under control

<b>Performance indicators for feature condition</b>		
<b>Attribute</b>	<b>Attribute rationale and other comments</b>	<b>Specified limits</b>
<b>A1.</b> Distribution.	Medicinal leech is known from Cors Goch, Cors Bodeilio and Rhos y Gad.	<i>Upper limit:</i> n/a <i>Lower limit:</i> occurs in 3 locations
<b>A2.</b> Population	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>A2.</b> Condition of habitat	Medicinal leech requires shallow still waters which become warm in summer to permit feeding and breeding activity. A blood source (livestock, amphibians etc) is necessary.	<i>Upper limit:</i> n/a <i>Lower limit:</i> Presence of shallow pools in summer on relevant sites  <i>Upper limit:</i> <i>Lower limit:</i> Presence of livestock at pools in summer.
<b>Performance indicators for factors affecting the feature</b>		
<b>Factor</b>	<b>Factor rationale and other comments</b>	<b>Operational Limits</b>
<b>F1.</b> Livestock grazing	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>F2.</b> Water quantity	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>
<b>F3.</b> Water quality	To be determined	<i>Upper limit:</i> <i>Lower limit:</i>

---

#### 4.26 Conservation Objective for Feature 28: Variable damselfly *Coenagrion pulchellum*.

---

Objectives for this SSSI feature will be supplied later.

---

#### 4.29 Conservation Objective for Feature 29: *Ischnura pumilio*

---

Objectives for this SSSI feature will be supplied later.

---

#### 4.30 Conservation Objective for Feature 30: *Arvicola terrestris* Water vole

---

Objectives for this SSSI feature will be supplied later.

## **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: Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* (EU habitat code 7120)**

---

**Conservation Status of Feature 1: Unfavourable declining.** Large areas of calcareous fen at Cors Erddreiniog in particular have been subject to drainage resulting in the removal of surface standing water and the development of *Molinia caerulea* dominated stands. Some improvements have been made but drainage of peripheral areas and nutrient inputs continue to affect the feature. The paucity of species-rich calcareous fen is a cause for concern and results in the overall unfavourable condition assessment (Creer, 2005).

Lack of management is regarded as the most widespread cause of species impoverishment in undrained rich-fens (Wheeler & Shaw, 1987; Wheeler 19881). Ecologically, this shows in over-dominance of single graminoid species and scrub, where stands become very rank leading to the suppression of lower-growing plants.

Derelict stands of both Annex I types exhibit poor diversity in structure and species. Long derelict stands become impassable and ungrazable, exhibit little or no exposed water or substrate, a key factor for many specialist fen taxa including the two Annex II species *Vertigo geyerii* and *Coenagrion mercuriale* .

Dereliction and undergrazing will be dealt with by re-introducing, or increasing grazing coupled, where necessary, with mowing and scrub management. This action will focus heavily on sites in the SAC, but is also required to help develop and establish corridors and stepping stones between component sites. Here Management Agreements will facilitate grazing. In most cases, mowing will need to be used first to tackle dereliction and make it possible for animals to graze. Each site has areas where vegetation requires minimum intervention management (light or no grazing and scrub control only). This is critical for several factors, not least the importance of unmanaged wetland vegetation for certain invertebrates (Foster & Proctor, 1995; Cattin *et al.*, 2003).

Enrichment from both diffuse and point sources is an issue for all features. Sources include inorganic fertilisers, organic manure, slurry and the disposal of abattoir and other organic waste adjacent to the sites, as well as sewage, both from sewage treatment works and septic tanks. Further nutrient inputs emanate from atmospheric nitrogen deposition eg nitrogen deposition (NO<sub>x</sub> and NH<sub>x</sub> combined) exceeds the published critical load for the closest equivalent habitat (Bobbink *et al.*, 2002).

Quantitative evidence for nutrient enrichment is mostly limited to water and substratum analysis. Supra-optimal concentrations of inorganic nitrogen have been recorded in spring discharge waters bordering some sites (Boyer & Wheeler, 1989; Shaw *et al.*, 2000; Environment Agency, 2007), and palaeolimnological evidence points to a recent eutrophication trend in benthic sediments of the fen lake Llyn Cadarn within Cors Goch. It is even clearer on some sites e.g. Cors Erddreiniog, Corsydd Mon (Shaw *et al.*, 2000) and Cors Geirch Corsydd Llyn, (Shaw & Wheeler, 1992) where phytometric evidence shows excess levels of substratum fertility.

Many sites have still not recovered from attempts at agricultural improvement of fen soils – these exhibit areas of very heavily modified marshy grassland and rush pasture on fen peat.

Actions to tackle dereliction will deal with the consequences of enrichment, but are unsustainable unless combined with measures to tackle this problem at source. Targeted

Management Agreements will establish buffers, reduce sediment inwash and overland flow, and prevent contamination by farmyard waste. Enrichment will also be tackled by encouraging nutrient off-take through grazing and mowing; removal of heavily enriched substrate; hydrological repair which will be used to route enriched water through and out of the fens in cases where there are no feasible actions for improving water quality, or else into reedbed treatment areas for *in-situ* nutrient removal. More generally, hydrological repair will aid improvements in water quality by reducing hydraulic gradients and thus aiding the *in-situ* treatment of nutrients by bio-geochemical processes, including denitrification.

Drainage leading to sub-optimal hydrological regimes and interruption of key hydrological pathways. Artificial drainage is very common throughout the project area. This was undertaken for agriculture, peat cutting and to provide effective conduits for water emanating from drainage schemes within the site catchments. Drainage has also been focussed within areas of groundwater discharge adjacent to and on the slopes above many of the fen sites. Most drainage infrastructure takes the form of open surface channels; under-drainage has been more localised. Drainage affects all sites. Most have a main channel down the centre, linked to smaller networks of drains throughout the sites affecting virtually the entire peat body. Drainage lateral to these main channels, and around the margins of fens, has affected all sites to some degree.

The fens occur in topographic basins and valley-heads and receive groundwater discharge, surface runoff from around the site margins, and direct rainfall. Drainage results in water table drawdown, particularly during the summer months, and peat dehydration above the water table to a point which damages the two Annex I habitats. Longer term consequences include peat decomposition and shrinkage, nutrient enrichment from mineralisation of organically bound fractions, and acidification caused by the reduced influence of calcareous groundwater. The hydrological and ecological effects of drainage have been studied in detail at Cors Erddreiniog (see Gilman & Newson, 1982; and Meade & Blackstock, 1988, respectively), where extensive areas which would naturally have been conducive to alkaline and calcareous fen instead support impoverished vegetation dominated by *Molinia caerulea* as a result of drier conditions and surface acidification. The other main consequence of drainage is that it severs important hydrological links between groundwater discharge zones and areas of dependent fen. This is a particular problem with drainage engineered at the base of groundwater discharge slopes

Hydrological repair will be used to restore target water levels and re-establish functionally critical corridors between groundwater discharge areas and dependent areas of alkaline and calcareous fen. Target water levels will be established through reference to published guidance on the hydrological requirements of the two Annex I fen habitats (including Brooks *et al.*, 2004; Wheeler & Shaw, 2007) and local site specific hydrological monitoring data (Countryside Council for Wales unpublished data).

Successional change has led to the loss of alkaline and calcareous fen or significant deterioration in their condition. Human activity alters the rate and direction of succession. Historically, management has had beneficial and harmful impacts on the fens. Dereliction leads to scrub encroachment, whereas the pattern of small old peat and marl cuttings display some of the best hydroseral vegetation development and succession - many examples of both of the Annex I types are clearly associated with such contexts. Evidence from the Norfolk Broads suggests that because of successional change, periodic re-cutting of peat may be necessary to ensure the future presence of certain key rich-fen vegetation types, even in cases where contemporary stands are subject to otherwise optimal management (Giller & Wheeler, 1986).

Successional change threatens all of the sites. Scrub development is the most visible sign, but loss of early successional stages of both Annex I types has also been widespread.

Scrub encroachment and the eventual development of closed scrub woodland affects both Annex I types in the project area, but total removal would have implications for specialist



invertebrate and lower plants. The key issue is to ensure that scrub is managed in an appropriate manner. The larger project sites all offer areas where scrub can be left but this leaves many areas where removal and management is necessary.

Scrub development will be tackled through a combination of mowing, grazing and the management of scrub; scrub development and its eventual maturation as wet woodland will be permitted in defined areas according to the needs of other features such as otters. Peat cutting will be used to rejuvenate hydroseres and ensure the long-term survival of certain key elements of the two Annex I habitats.

---

## 5.2 Conservation Status and Management Requirements of Feature 2: Alkaline Fens (EU habits code 7230)

---

### Conservation Status of Feature 2: Status: Unfavourable declining.

At Corsydd Mon, condition assessment revealed failure to achieve target standards on 5 out of 7 component SAC sub-sites. Attributes relevant to this assessment included excess *Molinia caerulea* litter and lack of brown moss components in many samples, the former probably due to undergrazing and the latter to associated shade or surface standing water (Creer, 2005). In addition to hydrological, nutrient and diversity issues this contributes to the declining nature of this feature

For management actions see Feature 1

---

## 5.3 Conservation Status and Management Requirements of Feature 3 Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp (EU code 3140).

---

**Conservation Status of Feature 3: Unfavourable declining.** Studies of Llyn Coron (Cors Goch) show this to have suffered a significant change from low productivity oligotrophic status to one typical of high nutrient concentrations, based on diatom analysis. Studies of Llyn yr Wyth Eidion show high winter NO<sub>3</sub> and total N, and again suggest a shift from the former oligotrophic status towards a eutrophic environment.

The smaller water bodies have not been surveyed in detail. Although they vary greatly in quality, visual inspections suggest that on the whole these are in better condition than the two lakes.

Management Actions for larger water bodies on the site are listed below (from Burgess et al. 2006)

<u>Lake</u>	<u>Data / survey needs</u>	<u>Scale of action required</u>	<u>Management Action</u>
Llyn Cadarn	-Macrophyte survey data. -Macrofossil analysis of a dated sediment core, to determine former charophyte assemblages. -Catchment nutrient budget.	Unknown – minor to major.	-Identify catchment nutrient sources and reduce nutrient loading. -Re-establish charophyte populations.
Llyn yr Wyth Eidion	-Regular macrophyte & water quality surveys. -Macrofossil analysis (as for Llyn Cadarn). -Catchment nutrient budget.	Unknown – minor to major	-Identify catchment nutrient sources and reduce nutrient loading.

Use of development control, appropriate license conditions and management agreements within and off sites to tackle nutrient input, combined with legislative approaches to aerial deposition.

---

#### **5.4 Conservation Status and Management Requirements of Feature 4 Northern Atlantic wet heaths with *Erica tetralix* (EU code 4010).**

---

**Conservation Status of Feature 4: Unfavourable unclassified.** Monitoring of the Atlantic wet heath feature on Cors Goch and Cors Erddreiniog has revealed an excess of *Molinia caerulea* litter and reduced cover of ericoid shrubs associated with inadequate burning and grazing management. (Creer, 2005).

For management actions see Feature 1

---

#### **5.5 Conservation Status and Management Requirements of Feature 5. *Molinia* meadows on calcareous, peaty clay or silt laden soils (*Molinion caeruleae*) (EU Code 6410).**

---

**Conservation Status of Feature 5: Status: unfavourable declining,** due to dereliction, undergrazing and invasive species.

For management actions see Feature 1

---

#### **5.6 Conservation Status and Management Requirements of Feature 6. Name: European dry heaths (EU Code 4030)**

---

**Conservation Status of Feature 6: Unfavourable: unclassified due to litter build up and lack of grazing**

For management actions see Feature 1

---

#### **5.7 Conservation Status and Management Requirements of Feature 7. Geyer's whorl snail *Vertigo geyeri* (EU code Annex II: 1013).**

---

**Conservation Status of Feature 7: Unfavourable declining.** The populations of Geyer's whorl snail on Corsydd Mon are assessed to be unfavourable and declining due to dereliction and under-grazing of the habitat. This is particularly the case at Cors Erddreiniog where much of the habitat is outwith the ownership of conservation bodies. At Waun Eurad a CCW management agreement seeks to maintain appropriate grazing via common land grazing.

For management actions see Feature 1 and those below

Populations of *Coenagrion mercuriale* and *Euphydrias aurinia* are known to have declined, with ecological dereliction being a key factor. Similarly, populations of *Vertigo geyeri* are known to be vulnerable to the loss of open small-sedge communities and thus require focussed attention to ensure that suitable areas of fen are retained or encouraged to expand.

This results in population decline or loss, resulting in increased fragmentation and vulnerability to a range of external and intrinsic factors relating to population structure and gene flow.

The primary solution will be carefully targeted management within priority areas defined for specific species. Particular attention will be paid to fine-tuning feature sensitive management activities and removal and grazing. Grazing exclusion will be continued/extended to provide suitable habitat for marsh frits. Small-scale re-opening of choked runnels in areas of *Schoenus* vegetation will be used specifically for *Coenagrion mercuriale*.

---

**5.8 Conservation Status and Management Requirements of Feature 8 Southern damselfly *Coenagrion mercuriale* (EU code Annex II 1044).**

---

**Conservation Status of Feature 8: Unfavourable declining.** Population surveillance has occurred for a number of years and confirms that dereliction, hydrology, water quality and undergrazing are reducing habitats and populations

Management actions see feature 1 and 5.7

---

**5.9 Conservation Status and Management Requirements of Feature 9. Marsh fritillary *Euphydryas (Eurodryas, Hypodryas) aurinia*. (EU code annex II 1065)**

---

**Conservation Status of Feature 9: Status: unfavourable declining.** Surveillance and monitoring of this species records a decline in suitable and good habitat within the SAC and for potential meta-population sites within the catchment. Fragmentation of habitat, both within and outside the SAC, dereliction of sites, grazing issues (under and over) affect the suitability of habitat for this feature

Management actions – see features 1 and 5.7, but also:

Fragmentation has been most profound at Cors Erdreiniog, but actions need targeting at gradational contacts between fen and other wetland and dry land habitats via management of land within and adjacent to fen sites, land linking sites to each other, and land functionally critical to their survival. Land surrounding the fens is almost wholly devoted to intensive agricultural land management. Furthermore, many areas of fen and other forms of semi-natural habitat occur within agricultural holdings adjacent to or themselves subject to statutory protection.

Intensive agricultural land management has fragmented the fen sites and resulted in the loss of connecting corridors critical for species movement and genetic exchange. Fragmentation threatens the viability of individual sites through impacts on population genetics (Hooftman *et al.*, 2003), increased vulnerability to chance events, and the creation of unsustainably small or impacted wetland units. Fragmentation reduces the viability of surviving wetland units by increasing their vulnerability to marginal impacts and drainage. Marginal habitat loss and the elimination of critical ecotones between fen and other habitats have a wider biodiversity impact, whilst also removing protective buffer zones. Nutrient enrichment represents a further critical ongoing and cumulative effect. Inappropriate land management also has a direct impact on areas of fen within agricultural holdings and adjacent to the main conservation sites.

Management Agreements will be used on and off site for favourable management of habitat, and habitat supporting Annex II species, including peripheral non wetland habitat of functional significance to these species and the two Annex I habitats. Management Agreements will include prescriptions for the restoration/re-creation of 'edge habitat'. Appropriate management will improve ecological connectivity within sites and between unit's contiguous habitats. Within sites, non-conservation land owners and occupiers will encouraged to mow and graze

---

**5.10 Conservation Status and Management Requirements of Feature 10. Name: Great Crested Newt *Triturus cristatus*. EU code 1166**

---

**Conservation Status of Feature 10: Favourable: unclassified.**

This feature has not yet been assessed in terms of status and management

---

**5.11 Conservation Status and Management Requirements of Feature 11. Otter *Lutra lutra*. EU Code 1355**

---

**Conservation Status of Feature 11: Unfavourable: unclassified.**

Surveillance of the SAC and catchment indicates the need to establish monitoring procedures to accurately set baseline data for otter populations. However, surveillance of the site indicates the need to increase suitable habitat for breeding, loafing and cover.

The conservation status of other SSSI species features has not yet been assessed.

## **6. ACTION PLAN: SUMMARY**

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

### **Site Name(s): Corsydd Mon / Anglesey Fens (SAC)**

<b>Unit Number</b>	<b>CCW Database Number</b>	<b>Unit Name</b>	<b>Summary of Conservation Management Issues</b>	<b>Action needed?</b>
ct 1	000241	Cefn carrog	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ct 2	000242	south-west of Canol dydd	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ct 3	000243	Clegyrdy Bach - North	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ct 4	000244	Clegyrdy Bach - south	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
we 1	000442	Waun Eurad	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone .There are some areas where years of nutrient input can only be reversed by re-profiling and peat removal. Other areas where Fen has been constrained will require localised peat cutting. Scrub removal is required along with temporary, seasonal fencing	Yes
grg1	000477	gwenfro Isaf	Need to ensure long term sustainable grazing is introduced. Water levels in main ditch need raising slightly; along with subsidiary ditches. To increase diversity of habitats and encourage grazing a combination of hand and machine cutting and planned, controlled burning is required. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone. There are some areas where years of nutrient input can only be reversed by re-profiling and peat removal; followed up by the introduction of a constructed wetland to absorb nitrates. Other areas where Fen has been constrained will require localised peat cutting.	Yes
grg 2	000478	Plas y Brain	Need to ensure long term sustainable grazing is introduced. Water levels in main ditch need raising slightly; along with subsidiary ditches. To increase diversity of habitats and encourage grazing a combination of hand and machine cutting as a precursor to larger scale planned and controlled burning. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone. There are some areas where years of nutrient input can only be reversed by re-profiling and peat removal; followed up by the introduction of a constructed wetland to absorb nitrates. Other areas where Fen has been constrained will require localised peat cutting.	Yes
grg 3	000479	Gwenfro uchaf	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
grg 4	000480	Near Llanddyfnan Church	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
grg 5	000481	Rhos y Gad - connecting drain	Need to ensure long term sustainable grazing is introduced and that main ditch water levels raised. To increase diversity of habitats and encourage grazing a hand cutting and planned, controlled burning is required. Adjacent land to North should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone.	Yes
grg 6	000482	Bryn Farm	Need to ensure long term sustainable grazing is introduced. To increase diversity of habitats and encourage grazing a hand cutting and planned, controlled burning is required. Adjacent land to South of site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone. There are some areas where years of nutrient input can only be reversed by re-profiling and peat removal. Other areas where Fen has been constrained will require localised peat cutting.	Yes
grg 7	000483	Rhos y Gad - south west	Need to ensure long term sustainable grazing is introduced. To increase diversity of habitats and encourage grazing fen needs sensitive cutting. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
grg 8	000484	Rhos y Gad	Need to ensure long term sustainable grazing is introduced. To increase diversity of habitats and encourage grazing a hand cutting and planned, controlled burning is required. Adjacent land to South of site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone. There are some areas where years of nutrient input can only be reversed by re-profiling and peat removal. Other areas where Fen has been constrained will require localised peat cutting. Localised grazing required in North section of Site	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
cyf 1	000695	Cors y farl fen	Currently grazed by CCW ponies on informal agreement. Need to ensure long term sustainable grazing is introduced. Water levels in main ditch need raising slightly; and ditch by roadway needs infilling. To increase diversity of habitats and encourage grazing outer (drier) fen needs sensitive cutting. Central section of fen requires firebreaks and planned, controlled burning. Highway drains that lead into the site need investigating. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
cyf 2	000696	Outflow stream, Cors y farl	Need to ensure that the outflow stream is not deepened. This is covered by the OLDSI list.	Yes
cg 1	000697	Cors Goch Fen - south	Need to ensure long term sustainable grazing is introduced. To increase diversity of habitats and encourage grazing a combination of hand and machine cutting and planned, controlled burning is required. Adjacent land to South of site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone. There are some areas where years of nutrient input can only be reversed by re-profiling and peat removal. Other areas where Fen has been constrained will require localised peat cutting.	Yes
cg 2	000698	Cors goch fen North	Need to ensure long term sustainable grazing is introduced. To increase diversity of habitats and encourage grazing a combination of hand and machine cutting and planned, controlled burning is required. Adjacent land to South of site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone. There are some areas where years of nutrient input can only be reversed by re-profiling and peat removal. Other areas where Fen has been constrained will require localised peat cutting.	Yes
cg 3	000699	Ynys Isaf	Need to ensure long term sustainable grazing is introduced. To increase diversity of habitats and encourage grazing a hand cutting and planned, controlled burning is required. Adjacent land to North of site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone. Other areas where Fen has been constrained will require localised peat cutting. Constructed wetland required to soak up inflow on nutrients	Yes
cg 4	000700	Oelgragerrig	Grazing is required on this section. Other issues include potential source of exotic invasives and ensuring planning conditions are enforced	Yes
cg 5	000701	Bettws	Need to facilitate long term sustainable grazing	Yes
cg 6	000702	Mynydd - scrub	Need to facilitate long term sustainable grazing	Yes
cg 7	000704	Mynydd heath	Continue pony grazing currently carried out	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
cg 8	000705	Fen south of Bryn Goleu	Develop long term sustainable grazing regime, facilitate by planned programme of burns. Agri/Catchment scheme to south in surrounding fields. Inclusion of Catchment in NVZ helpful.	Yes
cg 9	000706	Bryn Goleu	Continuation of long term sustainable management.	Yes
cg 10	000707	Bryn Goleu grassland	Continue long term grazing	Yes
cg 11	000708	Grassland near Pant Glas	Facilitate long term grazing	Yes
cg 12	000709	Pant Glas	Facilitate long term grazing	Yes
cg 13	000710	Heath, west of Pant Glas	Facilitate long term grazing	Yes
cg 14	000711	Grassland island	continue grazing	Yes
cg 15	000712	Llyn cadarn - south-west	Avoid nutrient inputs to lake and ensure levels do not alter	Yes
cg 16	000713	Llyn Cadarn north-east	Avoid nutrient inputs to lake	Yes
cg 17	000714	Ty Mawr	Ensure long term sustainable grazing and lack of nutrients input to Lake. Agri scheme needs to ensure that grazing occurs at correct intensity on the Fen and NVZ would help deal diffuse issues	Yes
cg 18	000715	Ynys Uchaf - drain	Drain must not be deepened and must be kept free of rubbish, spoil etc. Pollution potential kept to a minimum. Water abstraction or cleaning of machinery must be avoided	Yes
cg 19	000716	Ynys Uchaf - track	Ensure track does not become a barrier to species features and that it does not encroach or cause pollution to Fen	Yes
cg 20	000717	Mynydd - lawn	Ensure sustainable management of grassland	Yes
ce11	000900	Fen surrounding Llyn yr Wyth Eidion	Need to ensure long term sustainable grazing is facilitated. Water levels need attention. To increase diversity of habitat and encourage grazing fen needs a planned cutting and burning regime. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce 2	000902	Coed Du Woodland	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned scrub removal regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce 2a	000903	Coed Du heathland	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing needs a planned cutting and burning regime. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes



Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
ce 4	000905	Maen eryr	Need to ensure long term sustainable grazing is facilitated. Water levels need attention. To increase diversity of habitat and encourage grazing fen needs a planned cutting and burning regime and peat cutting re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce 3	000910	Erddreiniog Farm	Need to ensure long term sustainable grazing is facilitated. Water levels need attention. To increase diversity of habitat and encourage grazing fen needs a planned cutting and burning regime and peat cutting re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce5	000912	Pylon Fen	Need to ensure long term sustainable grazing is facilitated. Water levels need attention. To increase diversity of habitat and encourage grazing fen needs a planned cutting and burning regime and peat cutting re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce 6	000913	Rallt Fen	Need to ensure long term sustainable grazing is facilitated. Water levels need attention. To increase diversity of habitat and encourage grazing fen needs a planned cutting and burning regime. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce 7	000917	The Ridge	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce10	000918	Bodgynda, Rocky Field	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
ce 12	000919	Nant Uchaf	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce 13c	000921	Nant Isaf, Spring Field	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Careful ditch management is critical to the southern damselfly. Sheep dip disposal in the immediate vicinity needs to be well planned to avoid endangering the damselfly species. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone.	Yes
ce 13a	000924	Nant Isaf, East of Access track	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce13b	000925	Nant Isaf, Upper Spring field	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce 13f	000926	Drain between Nant Isaf spring fields	Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone. Drain cannot be deepened. Some direct source inputs that are contributing sediment and pollutants need to be tackled	Yes
ce 16	000929	Cors Nant Isaf	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
ce 17	000930	East of Cefn Du; gentian heath and fen	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce 20	000931	Tyn Cae	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce 21	000932	Cefn Du, West heath	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce 27	000933	Cefn Du fen	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce 26	000934	Cae Leci	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce 6a	000935	Rallt Heath	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing establish a planned cutting and burning regime. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
ce 22	000936	North-west fen basin	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced along with localised peat scraping and re-profiling. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. There are at least 2 point source impacts impacting the fen. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce11a	000938	Llyn yr Wyth Eidion	Water quality and quantity of the lake paramount. Control on inputs of sediment and pollutants an issue Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce 27b	000941	Cors Cefniwrch: Maen eryr	Need to ensure long term sustainable grazing is facilitated. Water levels need attention. To increase diversity of habitat and encourage grazing fen needs a planned cutting and burning regime and peat cutting re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce 29	000942	Cors Cefniwrch: east of central drain	Need to ensure long term sustainable grazing is facilitated. Water levels need attention. To increase diversity of habitat and encourage grazing fen needs a planned cutting and burning regime, peat cutting and scrub. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
ce 30	000943	Cors Cefniwrch: south-east	Need to ensure long term sustainable grazing is facilitated. Water levels need attention. To increase diversity of habitat and encourage grazing fen needs a planned cutting and burning regime and peat cutting re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone.	Yes
ce 27c	000944	Improved land, west of Cors cefniwrch	Need to ensure long term sustainable grazing is facilitated. Water levels need attention. To increase diversity of habitat and encourage grazing fen needs a planned cutting and burning regime and peat cutting re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
ce 28	000945	Cors Cefniwrch: south-west	Need to ensure long term sustainable grazing is facilitated. Water levels need attention. To increase diversity of habitat and encourage grazing fen needs a planned cutting and burning regime, peat cutting and scrub. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
cb 1	000946	Bodeilio Fen	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
cb 2	000947	Ynys	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
cb 3	000948	Reed fen	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
cb 4	000949	Tyddyn Beren	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
cb 5	000950	Tan y Graig	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
cb 6	000951	Glan y Gors	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
cb 7	000952	Cae Penrhyn	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes
cb 8	000953	Cors y Plwyf	Need to ensure long term sustainable grazing is facilitated. To increase diversity of habitat and encourage grazing a planned cutting, scrub removal and burning regime should be re-introduced. Adjacent land surrounding the site should be entered into Agri/Catchment scheme to reduce nutrient/sediment inputs. Catchment would benefit from inclusion in Nitrate Vulnerable Zone	Yes

## 7. GLOSSARY

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

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

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

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

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

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

**Condition categories** The **condition** of **feature** can be categorised, following **condition assessment** as one of the following<sup>2</sup>:

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

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

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

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

**Conservation status assessment** The process of characterising the **conservation status** of a **feature** with particular reference to whether the

---

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

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**.<sup>3</sup>

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

**Integrity** See **site integrity**

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

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

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

---

<sup>3</sup> A full definition of favourable conservation status is given in Section 4.



monitoring in different parts of a site, and for facilitating communication with those responsible for management of different parts of a site.

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

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

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

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

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

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

**Special Feature** See **feature**.

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

**Unit** See **management unit**.

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

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

## **8. REFERENCES AND ANNEXES**

Bobbink, R., Ashmore, M., Braun, S., Fluckiger, W. & Van den Wngaert, I.J.J. (2002). *Empirical nitrogen critical loads for natural and semi-natural ecosystems: 2002 update*. Background document for the Expert Workshop on Empirical Critical Loads for Nitrogen on (semi- natural Ecosystems – Berne Switzerland, 11-13 November 2002.

Boyer, M.L.H. & Wheeler, B.D. (1989). Vegetation patterns in spring-fed calcareous fens: calcite precipitation and constraints on fertility. *Journal of Ecology*, **77**; 597-609.

Brooks, A.W., Jose, P.V. & Whiteman, M. (eds) (2004). *Ecohydrological Guidelines for Lowland Wetland Plant Communities*. Environment Agency (Anglian Region).

Burgess, A., Goldsmith, B. & Hatton-Ellis, T. 2006 Site Condition Assessment of Welsh SAC and SSSI Standing Water Features. CCW Contract Science Report No. 705.

Cattin, M.F., Blandenier, G., Banasek-Richter, B.L.F. (2003). The impact of mowing as a management strategy for wet meadows on spider (Araneae) communities. *Biological Conservation*, **52**; 161-185.

Creer, J. (2005). *Corsydd Mon / Anglesey Fens UK0012884. cSAC Monitoring Report 2004*. Countryside Council for Wales, Bangor.

Foster, A.P. & Procter, D.A. (1995). The occurrence of some scarce East Anglian fen invertebrates in relation to vegetation management. In: Wheeler, B.D., Shaw, S.C., Fojt, W.J. & Roberston, R.A. (eds). *Restoration of Temperate Wetlands*. Wiley. pp. 223-240

Fowles A.P 2004. Conservation Objectives for Marsh Fritillary metapopulations on marshy grassland. CCW

Giller, K.E. & Wheeler, B.D. (1986). Past peat cutting and present vegetation patterns in an undrained fen in the Norfolk Broadland. *Journal of Ecology*, **74**; 219-247.

Gilman, K. & Newson, M.D. (1982). *The Anglesey Wetlands Study. Report of a three year contract to the Nature Conservancy Council*. Nature Conservancy Council, Bangor.

Meade, R. & Blackstock, T.H. (1988). The impact of drainage on the distribution of rich-fen plant communities in two Anglesey basins. *Wetlands*, **8**; 159-177.

Shaw, S.C. & Wheeler, B.D. (1992). *Potential for the Restoration of a Wetland Reclaimed for Agriculture*. Sheffield University Report to CCW North-west Region, Countryside Council for Wales, Bangor. 39 pp

plus appendices.

Shaw, S.C., Wheeler, B.D., Jones, P.S. & Colley, L. (2000). *Water Quality and Substratum Chemistry Analyses for Cors Erddreiniog National Nature Reserve, Anglesey*. Unpublished Report to CCW Northwest Region, Countryside Council for Wales, Bangor

Wheeler, B.D. (1988). Species richness, species rarity and conservation evaluation of rich-fen vegetation in England and Wales. *Journal of Applied Ecology*, **25**; 331-353.

Wheeler, B.D. & Shaw, S.C. (1987). *Comparative Survey of Habitat Conditions and Management Characteristics of Herbaceous Rich-fen Vegetation Types*. Unpublished report to the Nature Conservancy Council.