CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES

CORE MANAGEMENT PLAN
(INCLUDING CONSERVATION OBJECTIVES)

INCORPORATING:

ELENYDD – MALLAEN SPECIAL PROTECTION AREA

ELENYDD SPECIAL AREA FOR CONSERVATION (SAC)

COETIROEDD CWM ELAN / ELAN VALLEY WOODLANDS) SAC

CWM DOETHIE - MYNYDD MALLAEN SAC

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Approved by: David Mitchell

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

Cyngor Cefn Gwlad Cymru
Countryside Council for Wales

NATURA 2000

Ramsar

Llywodraeth Cynulliad Cymru
Welsh Assembly Government
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PREFACE

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

One of the key functions of this document is to provide CCW's statement of the Conservation Objectives for the relevant Natura 2000 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 SITES

A general vision is given below. For more detailed visions relating to the 17 constituent SSSIs, see annex 1.

WITHIN THE CONSTITUENT SITES:

For each habitat, or species group of special interest, 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.

For each species of particular interest, the 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."

2. SITE DESCRIPTION

2.1 Area and Designations Covered by this Plan

Grid references: **SN 860660, SN 720420, SN 962714, SN 798810 & SN 935708**

Unitary authority: **Powys, Ceredigion and Carmarthenshire**

Area (hectares):

Designations covered:

Elenydd – Mallaen SPA, excluding small parts lying within the Afon Teifi SAC and River Wye SAC
Elenydd SAC
Coetiroedd Cwm Elan SAC
Cwm Doethie – Mynydd Mallaen SAC
Elenydd SSSI, excluding a small part lying within the Afon Teifi SAC
Cwm Doethie – Mynydd Mallaen SSSI
Marcheini Uplands, Gilfach Farm & Gamallt SSSI, excluding a small part lying within the River Wye SAC
Carn Gafallt SSSI
Llynoedd Ieuan SSSI
Cwm Gwynllyn SSSI
Coedydd Glannau a Cwm Coel SSSI
Coed yr Allt-goch SSSI
Cerrig Gwalch SSSI
Caban Lakeside Woodlands SSSI
Mwyngloddfa Cwmystwyth SSSI
Caeau Cnwch a Ty-n-y-graig SSSI
Caeau Troed-rhiw-drain SSSI
Gweunydd Ty'n-y-llidiart SSSI
Rhos yr Hafod SSSI
Rhosydd Llanwrthwl SSSI
Vicarage Meadows SSSI

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

2.2 Outline Description

The Elenydd – Mallaen area occupies the southern section of the Cambrian Mountains in central Wales, stretching from the upper Cothi and Tywi valleys north-west of Llandovery to the Ystwyth, Elan and Wye valleys in the north. These hills are built of rocks of Silurian and Ordovician age and the landforms are typical of the 'slate uplands' of south-central Wales, with plateaux separated by steep-sided valleys.

Elenydd is located in the centre of this area. It is one of the most important areas of hill land in Wales for nature conservation and is of outstanding interest for its range of breeding birds. Much of the hill vegetation is also of special interest. Elenydd is important in Mid Wales for its nutrient-poor upland lakes. The area supports a wide variety of uncommon plants and animals.

Cwm Doethie – Mynydd Mallaen, consisting largely of steep-sided valleys and upland tracts, is located in the southern part of the Cambrian Mountains. It is of outstanding interest for its heath and woodland habitats and wildlife and, in particular, its birdlife.

Marcheini Uplands, Gilfach Farm and Gamallt are located to the north of the River Wye above Rhayader. This is an area of outstanding ornithological interest. The site also supports important areas of blanket bog, dry heath, woodland, grassland and lichen-rich rock outcrops.

Carn Gafallt is located at the junction of the rivers Elan and Wye just below Rhayader. It is an excellent example of a predominantly upland site supporting a diverse range of habitat types. These include nationally important examples of semi-natural broadleaved woodland, above which is situated one of the largest expanses of heather moorland in Brecknock. The area is not only important for its plant communities, but also supports notable populations of birds, invertebrates and lower plants.

Llynoedd Ieuan, located in the hills between the Wye and Ystwyth valleys, is an extensive area of submontane heathland and blanket mire containing three upland lakes with associated areas of actively growing basin mire.

Cwm Gwynllyn occupies a glaciated valley to the north west of Rhayader. It has a number of features of biological interest. It includes important areas of freely drained, sessile oak woodland developed on acidic Silurian rocks, which grade into heath, ffridd and rocky habitats. Gwynllyn, a good example of a nutrient-poor lake, is surrounded by a well-developed transition into bog, scrub and grassland habitats.

Coedydd Glannau a Cwm Coel are located in the Elan Valley on the west side of Garreg-ddu Reservoir. They comprise a particularly diverse example of sessile oak woodland, with well-developed epiphytic lichen, moss and liverwort communities.

Coed yr Allt-goch is located on the north-east shore of Penygarreg Reservoir in the Elan Valley. It is a good example of sessile oak woodland, developed on free draining Silurian rocks.

Cerrig Gwalch is a fine example of mixed deciduous woodland developed on an east-facing steep cliff in the Wye valley to the north of Rhayader.

Caban Lakeside Woodlands are located on the east-facing slopes above Caban Coch Reservoir in the Claerwen valley. They support one of the most interesting lower plant floras in Radnor.

Mwyngloddfa Cwmystwyth comprises old mine workings located in the upper Ystwyth valley. It is of special interest for its minerals and for the plant communities that have developed on the metal-rich spoil tips, associated rock outcrops and ruined buildings. These habitats support a great variety of lichens, including a number of rare species, which are typically only found associated with heavy-metal-rich sites. The mine workings are also important for hibernating bats.

Caeau Cnwch a Ty'n-y-graig comprises four traditionally managed fields lying in a small valley below Craig Cnwch, near Elan Village. They provide an outstanding example of a type of herb-rich grassland that is characteristic of the upland fringe of central Wales.

Caeau Troed-rhiw-drain occupies sloping ground on the south west side of Peny-y-garreg Reservoir in the Elan Valley. It supports outstanding examples of herb-rich hay meadows in which a number of rare plant species are well represented. The meadows are variants of a characteristic mid Wales type.

Gweunydd Ty'n-y-llidiart comprises a series of rough pasture fields situated on gently sloping ground to the west of Garreg-ddu Reservoir in the Elan Valley. The site is notable in displaying an excellent example of the range of dry and damp unimproved pasture types once typical of the upland fringe in this part of Wales. More than one hundred species of higher plants are known to occur here.

Rhos yr Hafod is located on the hillside to the north of Penygarreg Dam in the Elan Valley. It is an outstanding example of herb-rich hay meadow and pasture land in which a number of uncommon plant species are very well represented.

Rhosydd Llanwrthwl comprises a series of unimproved wet pastures on level or gently sloping ground in the valley of the Afon Dulas, to the west of Llanwrthwl village. The size and quality of the stands of wet grassland, wet heath and flush vegetation present at Rhosydd Llanwrthwl are exceptional, and represent a significant proportion of the higher quality remnants of this habitat resource left in Brecknock. Several locally scarce plants are present, and nationally scarce invertebrates have been recorded from the site.

Vicarage Meadows are located at Abergwesyn in the upper Irfon valley. They are an important example of an unusual type of unimproved, herb-rich acid grassland. The rich flora includes a number of uncommon plants.

2.3 Outline of Past and Current Management

The main land uses in the Elenydd – Mallaen area, are agriculture and commercial forestry. Much of the land forms the catchment area for Llyn Brianne, Teifi Pools and the Elan Valley Reservoirs. The area is also used for military training and is important for tourism and outdoor recreation.

Until the 1890s, traditional agricultural methods, including hay cropping and the hafod and hendre grazing system prevailed throughout the area. The construction of major reservoirs and creation of forestry plantations disrupted these traditional farming systems, which were eroded further by the introduction of tractors, artificial fertilisers, silage cropping and agricultural subsidies for drainage and land improvement from the 1940s onwards. These changes lead to a dramatic increase in the number of sheep kept in the area, which was detrimental to the upland habitats in particular. However, the need to protect water catchments and legislation to protect wildlife sites has limited the 'improvement' of hill land in the central parts of the area and the availability of agri-environment funding has reduced stocking levels and restored some land to traditional management since the 1990s. However, large areas of upland habitats remain in poor condition and require specific restoration management.

Llyn Brianne reservoir supplies water to south west Wales, Teifi Pools supply parts of south Ceredigion, whilst the Elan Valley Reservoirs supply water to Birmingham, mid Wales and to south Wales via the Wye-Usk transfer scheme. The dam turbines also supply hydroelectric power to the National Grid.

This is a key low flying training area for military aircraft and the Elan Estate is used for infantry training. Tourist/recreational activities include walking, fishing, bird watching, horse riding, mountain biking and motor sports. Many local businesses rely on these outdoor activities. There is a visitors' centre in Elan Village and nature reserves at Allt Rhyd-y-groes, Gwenffrwdd/Dinas, Nant Irfon, Vicarage Meadows, Carn Gaffalt, Claerwen and Gilfach Farm. There is also a network of walking trails at the Hafod Estate in Cwm Ystwyth.

2.4 Management Units

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

Maps showing the management units are included with this plan.

Tables in annex 2 confirm the relationships between the management units and the designations covered.

3. THE SPECIAL FEATURES

3.1 Confirmation of Special Features

Designated feature	***Relationships, nomenclature etc***	***Conservation Objective in part 4***
SAC features		
Annex I habitats that are a primary reason for selection of this site:		
1. Blanket bogs *an Annex I habitat that is a primary reason for selection of* ***Elenydd SAC***	**EU Habitat Code: 7130** Also an SSSI feature that occurs in areas outside the Elenydd SAC. Generally conforms to National Vegetation Classification (NVC) types: M1, M2, M3, M4, M15, M17, M18, M19, M20 & S9.	1
2. European dry heaths *an Annex I habitat present as a qualifying feature at* ***Elenydd SAC, Cwm Doethie – Mynydd Mallaen SAC*** *and* ***Coetiroedd Cwm Elan SAC,*** *but not a primary reason for site selection*	**EU Habitat Code: 4030** Also an SSSI feature that occurs widely in areas outside the Elenydd, Cwm Doethie – Mynydd Mallaen and Coetiroedd Cwm Elan SACs. Generally conforms to NVC types: H8, H10, H12 & H18. Referred to as 'dry heath' throughout the plan.	2
3.Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles. *an Annex I habitat that is a primary reason for selection of* ***Cwm Doethie – Mynydd Mallaen SAC*** *and* ***Coetiroedd Cwm Elan SAC***	**EU Habitat Code: 91A0** Also an SSSI feature that occurs widely in areas outside the Cwm Doethie – Mynydd Mallaen and Coetiroedd Cwm Elan SACs. Generally conforms to NVC types: W10, W11, W16 & W17. Referred to as 'oak woodland' throughout the plan.	3
4. *Tilio-Acerion* forests of slopes, screes and ravines *an Annex I habitat present as a qualifying feature at* ***Coetiroedd Cwm Elan SAC,*** *but not a primary reason for site selection*	**EU Habitat Code: 9180** Also an SSSI feature that occurs in areas outside the Coetiroedd Cwm Elan SAC. Generally conforms to NVC types: W8 & W9. Referred to as 'ash woodland' throughout the plan.	4

5. Calaminarian grasslands of the *Violetalia calaminariae* *an Annex I habitat that is a primary reason for selection of **Elenydd SAC***	**EU Habitat Code: 6130** Also an SSSI feature that occurs in areas outside the Elenydd SAC. Roughly conforms to NVC type 37. Referred to as 'metal tolerant vegetation' throughout the plan.	5
6. Oligotrophic to mesotrophic standing waters of the *Isoeto-Nanojuncetea* *an Annex I habitat present as a qualifying feature at **Elenydd SAC,** but not a primary reason for site selection*	**EU Habitat Code: 3130** Also an SSSI feature that occurs in outside the Elenydd SAC. Conforms to standing water Groups B and C (Duigan et al.) or NVC types: A22 & A23. Referred to as 'oligotrophic lake vegetation' throughout the plan.	6
7. Floating water-plantain *Luronium natans* *an Annex II species that is a primary reason for selection of **Elenydd SAC***	**EU Species Code: 1831** Can also be considered as an attribute of the oligotrophic lake feature (see above).	7
SPA features		
8. breeding Red Kite *Milvus milvus*	**EU Species Code: A074**	8
9.breeding Merlin *Falco columbaris*	**EU Species Code: A098** Can also be considered as an attribute of 'an assemblage of upland breeding birds', which is an SSSI feature.	9
10. breeding Peregrine *Falco peregrinus*	**EU Species Code: A103** Can also be considered as an attribute of 'an assemblage of upland breeding birds', which is an SSSI feature.	10
Ramsar features		
Not applicable		
Elenydd SSSI features		
Not yet confirmed.	Also see above.	

3.2 Distribution of Special Features

Importance of each constituent SSSI for the special features of European Importance is given below. Annex 4 sets out the relationship between the special features and each management unit. All special features are allocated to one of seven classes. These classes are:

Key Features
KH - a 'Key Habitat', 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).
KS – a 'Key Species', often driving both the selection and management of a Key Habitat.

Other Features
Sym - habitats and species that are of importance but are not the main drivers of management or focus of monitoring. These features will benefit from management for the key feature(s). These may be classed as 'Sym' features because:

a) they are present in the unit but may be of less conservation importance than the key feature; and/or

b) they are present in the unit but in small areas/numbers, with the bulk of the feature elsewhere; and/or
c) 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 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 features.

x – Features not known to be present.

The table(s) below sets out the relationship between the special features of European importance and SSSIs covered by this plan:

Constituent SSSI	**SAC/SPA Features (see 3.1 above)**									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Elenydd	KH	KH	KH	Sym	KH	KH	KS	KS	Sym	Sym
Cwm Doethie – Mynydd Mallaen	Sym	KH	KH	x	Sym	x	x	KS	Sym	Sym
Marcheini Uplands, Gilfach Farm & Gamallt	(KH)	(KH)	(KH)	Sym	x	x	x	Sym	Sym	Sym
Carn Gafallt	Sym	KH	KH	(KH)	x	x	x	Sym	Sym	Sym
Llynoedd Ieuan	(KH)	Sym		x	x	(KH)	x	Sym	Sym	Sym
Cwm Gwynllyn	x	Sym	KH	x	x	(KH)	(KS)	Sym	Sym	Sym
Coedydd Glannau a Cwm Coel	x	x	KH	Sym	x	x	x	Sym	Sym	Sym
Coed yr Allt-goch	x	x	KH	Sym	x	x	x	Sym	Sym	Sym
Cerrig Gwalch	x	Sym	KH	KH	x	x	x	Sym	Sym	Sym
Caban Lakeside Woodlands	x	x	KH	x	x	x	x	x	x	Sym
Mwyngloddfa Cwmystwyth	x	x	x	x	KH	x	x	Sym	Sym	Sym
Caeau Cnwch a Ty-n-y-graig	x	x	x	x	x	x	x	Sym	Sym	Sym
Caeau Troed-rhiw-drain	x	x	x	x	x	x	x	Sym	Sym	Sym
Gweunydd Ty'n-y-llidiart	x	x	x	x	x	x	x	Sym	Sym	Sym
Rhos yr Hafod	x	x	x	x	x	x	x	Sym	Sym	Sym
Rhosydd Llanwrthwl	x	x	x	x	x	x	x	Sym	Sym	Sym
Vicarage Meadows	x	x	x	x	x	x	x	Sym	Sym	Sym

Tables in annex 3 show the relationship between the management units within these SSSIs and the features of European importance.

4. CONSERVATION OBJECTIVES

Background to Conservation Objectives:

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

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

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

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

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

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

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

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

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

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

- Conservation planning and management.

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

- Assessing plans and projects.

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

- Monitoring and reporting.

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

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

b. Format of the conservation objectives

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

Each conservation objective consists of the following two elements:

1. Vision for the feature
2. Performance indicators

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

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

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

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

4.1 Conservation Objective for Feature 1: 7130 Blanket bogs

Vision for feature 1

- The extent, quality and diversity of blanket bog vegetation within the constituent sites is maintained and, where possible, degraded bog is restored to good condition.
- Populations of uncommon bog plants, such as tall bog-sedge, slender sedge, magellanic bog-moss and round-fruited collar-moss, are stable or increasing.
- The bogs continue to provide suitable habitat for breeding birds, including golden plover, dunlin and red grouse, and invertebrates, such as large heath butterfly.
- Peat profiles containing important pollen records are maintained.
- 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.

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Extent	There have been past losses and degradation, so it is essential to maintain the current (2006) extent of the habitat and to restore degraded areas where possible	*Upper limit:* N/A, constrained by site topography and hydrology. *Lower limits:* No measurable loss of extent (as measured in 2006).
A2. Distribution	It is important to maintain the range of blanket bog across the entire plan area and not just in the core areas.	*Upper limit:* N/A. *Lower limit:* Occurs in all units where listed as **KH** or **Sym** in Annex 3 of the plan.
A3. Habitat Quality	The key attributes are presence and frequency of positive (listed below) and negative indicator species and the lack of significant grazing damage to the dwarf shrubs (where present).	*Upper Limit:* N/A *Lower limit:* 90% of vegetation within each site unit where blanket bog is a key habitat (see Annex 3) should conform to the definition of good quality blanket bog given below.

Definition of good quality blanket bog:
At least 6 positive indicator plants present (see list below) and at least 50% of vegetation cover comprising 3 or more of the positive indicators. Flat-topped bog-moss (*Sphagnum fallax*) should not be the only bog-moss present. No more than 75% cover combined of purple moor-grass, hare's-tail cottongrass, deergrass or haircap mosses.
AND:
If dwarf shrubs make up more than 75% of the vegetation cover, then there should be an understorey of other positive indicators.
AND:
No more than one third of shoots of all dwarf shrub species collectively showing signs of browsing.

Positive indicators for blanket bog quality:
Bog rosemary (*Andromeda polifolia*); heather (*Calluna vulgaris*); round-leaved sundew (*Drosera rotundifolia*); cross-leaved heath (*Erica tetralix*); crowberry (*Empetrum nigrum*); common cottongrass (*Eriophorum angustifolium*); hare's-tail cottongrass (*E. vaginatum*); bogbean (*Menyanthes trifoliata*); bog asphodel (*Narthecium ossifragrum*); non-crust-forming lichens (count together); other mosses (count together as one); reindeer moss (*Racomitrium lanuginosum*); bog-mosses (*Sphagnum spp.* – count each species*); deergrass (*Trichophorum cespitosum*); bilberry (*Vaccinium myrtillus*); cowberry (*V. vitus-idaea*).

*flat-topped bog-moss only counts if at least other type of bog-moss is present.

Performance indicators for factors affecting the feature		
Factor	***Factor rationale and other comments***	***Operational Limits***
F1. Peat Erosion	There is a natural cycle of peat erosion and deposition but the balance can be upset by burning, heavy grazing, pollution and vehicle damage. The process is best measured across the whole plan area using aerial photography, backed by ground checks, where necessary.	*Upper limit:* The total extent of active erosion over a 5 year period should not exceed the total extent of areas showing signs of peat accumulation and re-vegetation. May need a % upper limit (10%) Not possible to set. *Lower limit:* There are always some areas of bare peat present as a result of natural erosive processes.
F2. Burning	This type of oceanic blanket bog is adversely affected by burning, which leads to surface drying and the replacement of bog-mosses by purple moor-grass and common haircap.	*Upper limit:* No evidence of significant burning in any of the units where blanket bog is a key habitat. *Lower limit:* N/A.
F3. Drainage	Significant new drains within the bog areas could cause surface drying and peat erosion. Most old drains are now blocked with peat.	*Upper Limit:* No evidence of new drains or major clearance of old drains or deepening of bog outlet streams. *Lower limit:* N/A.
F4. Air Quality	Key attributes for measuring air pollution are nitrous oxides (Nox), sulphur dioxide (SO2), ammonia (NH3) and Ozone (O3). High levels of any of these are believed to be damaging and the may be combined effects. Increased cover of purple moor-grass and flat-topped bog-moss may be symptoms, as could increased levels of peat erosion. The Environment Agency has set critical levels for these pollutants in relation to various types of vegetation (Refer to the APIS database at *www.airquality.co.uk*).	*Upper limits:* No critical loads for acidic and nitrogen deposition are exceeded at 2 out of 3 Environment Agency monitoring stations in more than one year out of 5 *Lower limits:* None. Relevant monitoring stations are: SN854758, SN78-744 and SN770654.

Definition of blanket bog vegetation:
Generally occurs where the peat is deeper than half a metre and conforms with National Vegetation Classification types M2, M15, M17, M18, M19 and M20. Also includes bog-pools of type M3 & M4 and flushes corresponding to types M6 and M29 but this type of vegetation supports a more restricted range of plants and these areas should be avoided when sampling for vegetation condition.

4.2 Conservation Objective for Feature 2: 4030 European dry heaths

Vision for feature 2

- The extent, quality and diversity of heath vegetation within the constituent sites is maintained and, where possible, degraded heath is restored to good condition.
- The main heathland areas have a varied age structure with a mosaic of young heath, mature heath and degenerate heath.
- Sunny slopes in certain areas support vegetation that includes bell heather and western gorse and steep north and east facing slopes have a rich variety of mosses and liverworts beneath the dwarf shrub canopy, including bog mosses in some areas.
- Populations of uncommon plants, such as lesser twayblade, are stable or increasing.
- The larger heathland areas provide suitable habitat for breeding birds, including red grouse and merlin.
- All factors affecting the achievement of these conditions are under control.

Performance indicators for Feature 2

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

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Extent	There have been past losses and degradation, so it is essential to maintain the current (2006) extent of the habitat and to restore degraded areas where possible.	*Upper limit:* N/A, constrained by site topography and hydrology. *Lower limits:* No measurable loss of extent (as measured in 2006).
A2. Distribution	It is important to maintain the range of dry heath across the entire plan area and not just in the core areas.	*Upper limit:* N/A. *Lower limit:* Occurs in all units where listed as **KH** or **Sym** in annex 3 of the plan.
A3. Habitat Quality	The key attributes are presence and frequency of indicator plants (listed below), plants that are negative indicators and the lack of significant grazing damage to the dwarf shrubs. These conditions should be met in 90% of the defined area within each site unit where dry heath is key habitat (see annex 4). 'Natural' examples of bilberry dominated heath (H18) and recently burnt areas should be avoided when sampling but see also F1 below. Separate limits may need to be set for the more restricted types of heathland vegetation (eg. NVC types H10 & H21).	*Upper limit:* N/A *Lower limit:* 90% of vegetation within defined area of each site unit where dry heath is a key habitat (see Annex 3) should conform to the definition of good quality blanket bog given below.

Definition of good quality dry heath:
At least 50% of vegetation cover made up of indicator species (see list below). At least 50% of vegetation cover comprising dwarf shrubs. At least two types of dwarf shrub and one species of moss, liverwort or non-crustose lichen present (excluding hair-cap mosses and swan-neck mosses).
AND:
Less than 50% cover of gorse. Less than 1% cover of non-native plants and/or agricultural weeds. Less than 10% Bracken cover. Less than 20% Tree and scrub cover.
AND:
Less than two thirds of young pioneer plants collectively showing signs of browsing.

Indicators for dry heath quality:
Heather (*Calluna vulgaris*); bell heather (*Erica cinerea*); crowberry (*Empetrum nigrum*); non-crust-forming lichens; reindeer moss (*Racomitrium lanuginosum*); bog-mosses (*Sphagnum spp.*); bilberry (*Vaccinium myrtillus*); cowberry (*V. vitus-idaea*); 'other' mosses.

Performance indicators for factors affecting the feature		
Factor	***Factor rationale and other comments***	***Operational Limits***
F1. Burning	In oceanic areas, this type of heathland is able to re-generate by layering and management by burning will not be appropriate in many cases. Areas burnt may be measured by aerial photography. Any burning programmes agreed should aim to achieve a range of dwarf shrub age classes and retain a proportion of over-mature/de-generate vegetation.	*Upper limits:* No evidence of significant burning (patches larger than 0.5ha) in any parts of any units where a burning programme has not been agreed. AND: In areas subject to a burning plan, no more than 33% of the total heathland area is burnt in 5 years. AND: No evidence of burning in sensitive areas (see below). *Lower limit:* N/A.
F2. Erosion/Bare Ground	Is generally caused by uncontrolled fires (see above) or by vehicle use and heavy trampling. Assessments should not be made in areas that have been recently been subject to planned burning. Could be assessed using aerial photography.	*Upper Limit:* 10% bare ground in heathland areas in units where heathland is a key habitat. *Lower limit:* N/A.
F3. Air Quality	Increased cover of grasses and de-generate heather may be symptomatic of air pollution, as there is evidence that pollution makes heather plants more susceptible to damage by frost and heather beetles. The Environment Agency has set critical levels for these pollutants in relation to various types of vegetation (see 4.1 above).	*Upper limits:* No critical loads for acidic and nitrogen deposition are exceeded (see 4.1). *Lower limits:* None.

Areas sensitive to damage by fire:
Exposed summits; areas with thin soil (less than 5cm deep); slopes greater than 25% and gulley sides; areas with abundant bog-moss, liverworts or lichens; areas with existing small-scale structural variation due to natural re-generation (layering); pools, patches of bog peat haggs and eroded areas; areas adjacent to streams (5-10m buffer zone).

Definition of dry heath vegetation:
Generally occurs over thin peat on hilltops or mineral soils and conforms with National Vegetation Classification types H8, H10, H12, H18 (naturally occurring stands) & H21. Often occurs intermixed with dense bracken stands, rock and scree but these areas should be avoided when sampling for vegetation condition.

4.3 Conservation Objective for Feature 3: 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

Vision for feature 3

- Old sessile oak woodlands remain a significant and conspicuous feature of the upland valley sides within the plan area. Those in the Elan and Claerwen valleys and Rhayader area, the Dinas and Gwenffrwd area of the upper Tywi valley and the Cothi valley to the north of Mynydd Mallaen are particularly well developed and extensive.
- The boundary between the woodland and adjacent upland habitat is often a flexible one where trees regenerate on to open ground. At many locations oak woodland forms patches in 'ffridd' areas where there is less grazing pressure on the upland fringe.
- The oak woodland has of a variety of different structures and its character varies from place to place, ranging from long standing closed canopy areas to largely open wood pasture.
- The dominant trees are sessile oaks, but in places birch is more conspicuous. Rowans and other trees occur as a minor component while at the foot of slopes where the oak woodland grades into wet woodland, there are some alders and willows. Non-native trees such as beech and sycamore will be present only in small numbers are generally scarce.
- Under-storey shrubs are generally quite sparse, but scattered groups of hazel or holly will be found in some woods.
- Ground cover varies widely. Parts will be bracken covered, others grassy, others again have a wider range of flowering plants and ferns and are often carpeted with bluebells in spring. On thin soils in shaded moist situations there are luxuriant carpets of mosses and liverworts, with or without under-shrubs like heather and bilberry.
- The larger trees support a variety of lichens on their trunks and branches.
- In each woodland block, trees in most age classes are present and veteran trees are prominent in some areas, particularly where there is wood pasture.
- In all areas except wood pasture, there is evidence of actual regeneration in the form of seedlings and saplings or potential for regeneration, while in ~~some~~ wood pasture areas the planting and protecting of young trees, especially oak, may be appropriate.
- Dead wood is well distributed and sometimes abundant, both lying on the woodland floor and occurring as standing dead trees or branches of trees.
- The majority of the oak woodland has a closed canopy, but there are some clearings and much larger areas that are effectively wood pasture. These conditions should be sympathetic to the important populations of mosses and liverworts on the one hand and lichens on the other.
- The oak woods support a characteristic assemblage of birds, such as wood warbler, pied flycatcher and redstart.
- The pattern and distribution of grazed and un-grazed woods may change over time as different conservation needs arise.
- All factors affecting the achievement of these conditions are under control.

Performance indicators for Feature 3

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

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Extent	There is potential for woodland to expand into adjoining ffridd areas and hill land above.	*Upper limits:* None, except 0.1% loss of dry heathland areas to woodland (based on 2006 aerial photographs). *Lower limit:* The present extent of oak woodland as mapped (extent shown on 2006 aerial photographs - including temporary glades).
A2. Canopy cover	Generally, a mostly closed canopy is required in the interests of mosses, liverworts and woodland birds and many varieties of lichens that require shaded and humid conditions and protection from atmospheric pollutants. However, in wood pasture areas, the veteran trees often support lichens that require sunny but sheltered conditions and a variety of specialised insects whose adult stages live in sunny glades and feed on nectar. At the same time, a proportion of the 'closed canopy' woodland should also have some temporary gaps to favour tree and shrub regeneration. Key oak woodland areas to which the different canopy limits apply are shown on maps in Annex 4 of the plan. 90% of these areas must be compliant with the limits.	*Upper limits:* 75% canopy cover in key wood pasture areas (see maps in annex 4) OR: 95% canopy cover in key woodland areas where a closed canopy is not essential (see maps in Annex 4) OR: 100% canopy cover in key woodland areas with well-developed moss and liverwort carpets and/or shade demanding lichens. *Lower limits:* Presence of mature and/or veteran trees in key wood pasture areas OR: 75% canopy cover in key woodland areas where a closed canopy is not essential OR: 90% canopy cover in key woodland areas with well-developed moss and liverwort carpets and/or shade demanding lichens. AND: There should be a varying pattern of canopy breaks over time within all of the key woodland areas.
A3. Regeneration	Tree seedlings and saplings should be found underneath canopy gaps where soils and grazing levels allow. Planting and protection of young trees may be needed in wood pasture areas. Limits to be met in at least 50% of significant gaps in canopy in key oak woodland areas (see Annex 4). Such gaps should be recorded at each monitoring visit.	*Upper limits*: None in 'closed canopy' woodland OR: 15% ground cover of 'scrubby growth' in wood pasture areas. *Lower limit*: In 'closed canopy' areas only, the presence of viable saplings of native species at least 1.5m high within 10 – 15 years of a gap appearing. The definition of a canopy gap is one with a diameter equal to, or more than average height of standing trees).

A4. Woodland structure	A functioning woodland system will have trees of all ages present. Veteran trees are important habitat for birds and invertebrates as well as being important for lichens. In some woods with a history of coppicing or clear felling, it will be some time before veteran trees will appear. Mature trees can be expected in most stands. Under-storey tends to be quite sparse in much of western sessile oak woodland and will be rather patchy in distribution. Consequently, no meaningful targets can be set for this structural element, although it should be retained where it does occur. Similarly, the ground and field layers will vary greatly in cover and composition in response to natural local factors.	*Upper limits:* N/A *Lower limits:* Presence of trees and shrubs across the full range age classes in the key oak woodland areas, including saplings, young trees, mature and over mature trees AND: No reduction in the overall number of veteran trees in the key wood pasture areas (see Annex 4) AND: Presence of veteran trees in all woods in 100 years time, 75% of woods in 50 years time.
A5. Tree and shrub composition	In some areas non-native trees, such as sycamore or beech, will be tolerated, so long as they are not freely re-generating in the under-storey. There should be no exotic shrub species, such as rhododendron, present. Limits apply to all key oak woodland areas (see maps in Annex 4).	*Upper limit:* No rhododendron or thickets of other non-native invasive shrubs, such as beech and sycamore, are present in the understorey. *Lower limits:* 95% of tree and shrub cover is composed of locally native species, such as oak, birch, rowan, holly, hazel, hawthorn, alder and ash. AND: 50% of the canopy trees are oak
A6. Dead Wood	Dead wood should be present in all woods, both lying on the ground and standing (whole trees or branches). Limits apply to all key oak woodland areas (see maps in Annex 4).	*Upper limit:* None *Lower limit:* Presence of standing and fallen deadwood with a minimum diameter of 20cm and minimum length of 2m?
A7~~6~~. Quality Indicators	Bryophytes (mosses and liverworts) and many lichens that grow on trees are dependent on damp conditions both on the ground and in the air and are susceptible to heavy grazing and trampling and loss of tree canopy cover, as well as to over development of scrub and under-shrubs such as bramble and ivy.	*Upper limits:* None set. *Lower limits:* 50% ground cover of bryophytes in key woodland areas with well-developed moss and liverwort carpets (see maps in Annex 4).

Performance indicators for factors affecting the feature		
Factor	***Factor rationale and other comments***	***Operational Limits***
F1. Grazing pressure	Excessive grazing damages the field layer and prevents regeneration. A lack of grazing on the other hand can cause an excessive growth of ivy and bramble that can shade out the bryophytes and lead to loss of open ground in the key wood pasture areas. The general limits are taken from guidance relating to the Tir Gofal agri-environment scheme and may be difficult to interpret in terms of actual livestock numbers, particularly were woodland is grazed in conjunction with other adjoining habitats. One livestock unit is equivalent to 1 cow or horse. A sheep (with lamb) is equivalent to 0.15 livestock units.	*Upper limits:* 0.4 livestock units(LSU)/ha/year in key wood pasture areas (see maps in annex 4) AND: 0.05 LSU/ha/year in other key oak woodland areas. *Lower limits:* 0.2 LSU/ha/year in key wood pasture areas AND: Sufficient to suppress the growth of bramble and ivy in key woodland areas with well-developed moss and liverwort carpets and/or shade demanding lichens (see maps in Annex 4).
F.3 Woodland management	Natural woodland processes should be allowed to operate as far as possible in the achievement of the conservation objectives. In certain woods interventions in the form of thinning or group felling to create canopy gaps is acceptable as is the spot planting of trees, mainly oak. All plantings to be of local provenance.	*Upper limits:* 10% of canopy gaps created artificially AND: 20% of areas of regeneration achieved by planting.

4.4 Conservation Objective for Feature 4: 9180 *Tilio-Acerion* forests of slopes, screees and ravines

Vision for feature 4

- Ash is prominent on some of the less acidic rock outcrops within the oak woodlands in the Elan and Claerwen valleys and Rhayader areas. Particularly well-developed stands of ash woodland can be found within the Coetiroedd Cwm Elan SAC at Cerrig Gwalch and at several locations within the Carn Gaffallt SSSI.
- At Cerrig Gwalch, the rocks, ledges and damper soils in areas supporting ash woodland have plants that are typical of more fertile conditions, including dog's mercury, great woodrush, common dog-violet, meadowsweet, water avens, devil's-bit scabious, raspberry, lily-of-the-valley, stone bramble, slender St John's-wort, primrose, common valerian, ferns, wood sage, wild angelica, orpine, rock stonecrop, the locally rare lichen *Peltigera leucoplebia*, and a thriving population of mountain melick.
- Some dead wood is present and this provides an important habitat for the woodland flora and fauna.
- Generally, plants indicating disturbance and nutrient enrichment, such as large patches of nettles and cleavers, are not common and there are no extensive areas of bare ground within the woodland.
- Non-native trees and shrubs, such as sycamore and conifers, are absent.
- All factors affecting the achievement of these conditions are under control.

Performance indicators for Feature 4

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

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Extent	The current extent (2006) of ash woodland should be maintained. Outside of its key areas, it is impossible to measure the extent of ash woodland accurately because it occurs as small patches within the oak woodland. However, there should be no losses, provided that the extent of oak woodland is maintained (see 4.3 above).	*Upper limit*: N/A. *Lower limits*: 0.3 ha within Cerrig Gwalch SSSI AND: 1.5 ha within Carn Gafallt SSSI.
A2. Distribution	It is important to maintain the range of ash woodland across the entire plan area and not just in the core areas.	*Lower limit:* Continues to occur in all units where the habitat has been previously recorded (see Annex 3 of the plan).
A3. Canopy cover	As much of the ash woodland occurs on steep rocky ground, the canopy should be naturally fairly open, elsewhere some coppicing or thinning may be required to create canopy gaps. Limits apply to key units containing ash woodland within Cerrig Gwalch and Carn Gaffallt SSSIs (unit CG17).	*Upper limit:* 90% cover *Lower limit:* 30% cover AND: There should be a varying pattern of canopy breaks over time within the whole site area.

A4. Regeneration	The ash woodland at Cerrig Gwalch is located in areas that are naturally inaccessible to grazing stock. There is no constraint on tree and shrub re-generation in these areas. Elsewhere, grazing animals could prevent re-generation. Consequently, the limits only apply to unit CG17 within Carn Gafallt SSSI. They should be met in at least 50% of significant gaps in canopy. Such gaps should be recorded at each monitoring visit.	*Upper limit*: None *Lower limit*: Presence of viable saplings of native species at least 1.5m high within 10 – 15 years of a gap appearing.
A5. Ground flora	The ground flora can be naturally quite sparse in the rocky areas, but some typical ash woodland plants should be evident in all areas. Brambles and ivy can be locally quite abundant but other indicators of disturbance and nutrient enrichment should not be. Limits should apply to be met for 75% of the ash woodland in the Cerrig Gwalch and CG17 units.	*Upper limit:* The cover of nettles and/or cleavers should not exceed 10%. *Lower limit:* 80% of the field layer within key units (see A3 above) consisting of typical ash woodland plants (see list below).
A6. Indicators of local distinctiveness	The ash woodland at Cerrig Gwalch supports a number of locally rare plants. The limits only apply to this plan unit.	*Upper limit:* None *Lower limit:* Presence of lily-of-the-valley, stone bramble, orpine, rock stonecrop and mountain melick.
A7. Deadwood	It is difficult to set meaningful limits for dead wood but, in the short term. Much of the woodland is on steep ground and so removal of deadwood is unlikely. However, any fallen timber will tend to accumulate at the foot of the slopes. Limits should apply to be met for 75% of the woodland, within the key units.	*Upper limit:* None *Lower limit:* Presence of standing and/or fallen deadwood greater than 20 cm diameter within key ash woodland units (see A3 above).
Typical ash woodland plants: Wood sorrel; Voilets; Dog's mercury; Ferns (excluding bracken); Enchanter's nightshade; Wood Avens; Water avens; Barren strawberry; Stinging nettle; Bramble; Raspberry; Ivy; Wood speedwell; Lord's-and-ladies; Bluebell; Herb robert; Meadow-grasses; Common bent; Primrose; Yellow pimpernel; Wood anemone; Lesser celandine; Tufted hair-grass; Meadowsweet; Wood sage; Wood melick; Honeysuckle; Wild angelica; Creeping buttercup; Devil's-bit scabious; Common valerian; Great woodrush.		

Performance indicators for factors affecting the feature		
Factor	***Factor rationale and other comments***	***Operational Limits***
F1. Grazing pressure	Many typical ash woodland plants are sensitive grazing, which may also prevent tree and shrub regeneration in areas accessible to stock. Consequently ash woodland areas should be largely un-grazed.	*Upper limit:* 0.05 LSU/ha/year. *Lower limit:* None. Applies to all key ash woodland units (see A3 above).
F2. Non-native species	In some areas non-native trees, such as sycamore or beech, will be tolerated, so long as they are not freely re-generating in the under-storey. Limits should apply to be met for 75% of the woodland, within defined areas.	*Upper limits:* 5% cover of non-native trees in the canopy AND: No beech, sycamore (or other invasive non-native trees or shrubs) in the understorey. *Lower limit:* None. Applies to key ash woodland units (see A3 above).

4.5 Conservation Objective for Feature 5: 6130 Calaminarian grasslands of the *Violetalia calaminariae*

Vision for feature 5

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

- The habitat covers at least its current measured area.
- Lichens dominate large blocks of metal rich spoil from mine workings, tips, walls and other built structures.
- Lichens, mosses, ferns and a few higher plants such as sea campion are present on rock outcrops in cliffs, open cuts and about the entrances to shafts and adits.
- On open, usually level ground, plant communities are found represented by the moss genus *Weissia* and a range of crustose metallophyte lichens. The moss *Ditrichum plumbicola* and sea campion occur in the most base-rich areas, usually associated with scattered lime mortar from adjacent buildings.
- Heath, shrub, trees or other woody species are scarce or absent
- Light grazing prevents the growth of tall herbs, scrub and woodland. Grazing levels are carefully managed to avoid undesirable levels of ground disturbance.
- Areas of disturbed bare ground occupy less than 10% of potential areas that could be occupied by this habitat.
- There is less than 1% cover of non-native plants.
- There is no newly dumped material.
- The habitat is spreading gradually across this extensive site wherever suitable conditions exist.
- All factors affecting the achievement of these conditions are under control.
- All factors affecting the achievement of these conditions are under control.

Performance indicators for Feature 5

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

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Extent	The extent of the feature should only limited by the available extent of suitable metal rich substrate and species ability to colonise over time. It is difficult to measure the precise area that is occupied by typical metal tolerant vegetation but the current (2006) extent of its potential distribution has been mapped using aerial photography.	*Upper limit*: N/A. *Lower limit*: No measurable loss of extent of potential habitat (as measured in 2006) AND: There should be no measurable decline in the area of the feature (as mapped) within Cwmystwyth in the SAC where 11 key stands totalling 1.75 ha have been mapped using a GPS.
A2. Distribution	It is important to maintain the range of metal tolerant vegetation within the plan area. Areas with suitable metal rich substrate in the mine workings on both	*Lower limit:* Potentially suitable habitat continues to occur in all units where it has been previously recorded (see Annex 3 of the plan).

	sides of Cwmystwyth (Elenydd SAC) and elsewhere within the Elenydd SSSI at Dalrhiw, Nant y Car (north and south) and Cwm Elan mines.	
A3. Habitat Quality	The key attributes are presence of typical metal tolerant vegetation within the key areas and presence or abundance of negative indicators. It has not been possible to precisely define positive indicators for the feature on this site because requires expert skill to identify the key lower plants. The areas that can potentially support metal tolerant vegetation and 'key stands' of this vegetation are mapped in Annex 5 of the plan.	*Upper limit:* N/A *Lower limits:* 90% of the areas capable of supporting metal tolerant vegetation are 'suitable' (see definition below) AND: All of the key stands of metal tolerant vegetation are in 'good condition' (see definition below).
Definition of areas suitable for supporting metal tolerant vegetation: Less than 10% of cover in any area by trees, scrub, dwarf shrubs, bracken or other species capable of shading out lower plants. Less than 1% of vegetation cover should be made up of non-native species.		
Definition of good condition for key stands of metal tolerant vegetation: The vegetation should consist of lower plants, including metalliferous lichens and bryophytes, with a few metal tolerant higher plants such as sea campion, on exposed metal rich rocks, boulders, cliffs, scree and spoil or other rocky habitat. Grass cover should not be extensive within the key areas. There should be no trees, scrub, dwarf shrubs, bracken or other species capable of shading out the lower plants.		

Performance indicators for factors affecting the feature		
Factor	***Factor rationale and other comments***	***Operational Limits***
F1. Disturbance	Disturbance from excavation, vehicles and stock trampling can seriously affect this type of vegetation.	*Upper limits:* 10% of areas that can potentially support metal tolerant vegetation (see Annex 5) bare or disturbed ground (see definition below) AND: No disturbance in areas in key stands of metal tolerant vegetation identified in Annex 5 of the plan (review in 10 years) AND: No extension to existing areas of disturbance as identified by maps and photographs AND: No evidence of removal of spoil from site identified by maps and photographs. *Lower limit:* N/A

F2. Grazing pressure	Should be sufficient to prevent development of scrub or coarse vegetation but not heavy enough to cause disturbance (see F1 above). Only general limits can be set based on the requirements of acidic grassland. Limits apply to all areas that could potentially support metal tolerant vegetation (see Appendix 5).	*Upper limit:* 0.4 LSU/ha/year *Lower limit:* 0.2 LSU/ha/year

4.6 Conservation Objective for Feature 6: 3130 Oligotrophic to mesotrophic standing waters of the *Isoeto-Nanojuncetea*

Vision for feature 6

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

- The plan area contains several upland lakes with mildly acidic, nutrient-poor (oligotrophic) water and fairly stoney beds. Water plants found here include shoreweed, water lobelia, alternate water-milfoil, quillwort, spring quillwort, bulbous rush, floating bur-reed, broad-leaved pondweed, intermediate water-starwort and water moss.
- Fully developed oligotrophic lake vegetation is present in each of the lakes, including all of the component species typical of the SAC feature, as represented in the Elenydd SAC.
- For each of the lakes where it occurs, the extent and species composition of the oligotrophic lake vegetation is stable or increasing in range and/or diversity.
- The rare stonewort *Nitella gracillis*, scarce six-stamened waterwort and awlwort are found in Llyn Gynon. Six-stamened waterwort is also found growing in shallow water on the stony bed of Dolymynach Reservoir.
- Populations of these water plants are all stable or increasing and the water quality of the lakes remains suitable for their survival in the long term.
- Plants indicating unfavourable condition for this feature e.g. filamentous algae associated with eutrophication and invasive non-native species will absent or maintained or restored below an acceptable threshold level.
- With the exception of Dolymynach Reservoir, near-natural hydrological and geomorphological processes and forms will be operating in the lakes e.g. water levels, water depth, stability of bed substrate, with no artificial regulation of water levels or altered sediment regimes.
- Low nutrient and shade levels are maintained.
- All factors affecting the achievement of these conditions are under control.

Performance indicators for Feature 6

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

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Extent	The current (2006) extent of lakes supporting oligotrophic vegetation with relatively stoney beds should be maintained. These lakes have been mapped and are clearly visible on aerial photographs.	*Upper limit*: N/A *Lower limits*: No measurable loss of extent (as measured in 2006).
A2. Distribution	Occurs as key habitat within the Elenydd SAC at Llyn Gynon and Llynoedd Cerrigllwydion Uchaf and Isaf, plus Llyn Carw and Dolymynach Reservoir in Elenydd SSSI, Gwynllyn and Llynoedd Ieaun, with small stands elsewhere.	*Upper limit*: N/A *Lower limit:* Continues to occur in all units where the habitat has been previously recorded (see annex 3 of the plan).

A3. Aquatic plant community composition	The key attributes are presence of typical water plants and abundance of indicators of nutrient pollution. The limits apply to units where oligotrophic lake vegetation is a key habitat (see tables in annex 3 of the plan).	*Upper limits:* Benthic and filamentous algae rare AND: No blooms blooms of blue-green or planktonic green algae. *Lower limits:* At least 4 typical plants (see list below) are present in each water body AND: No loss of typical plant species that have been previously recorded from a water body AND: for Llyn Gynon and Llynoedd Cerrigllwydion Uchaf, water lobelia, shoreweed, quillwort, alternate water-milfoil and floating bur-reed are all present AND: for Llyn Gynon, awlwort and 6-stamened waterwort are present (also Nitella flexilis? – NS sp also in Gwynllyn) and Dolymynach Reservoir only, six-stamened waterwort is present.
A.4 Plant community structure	Characteristic vegetations zones, including submerged and floating plant beds, should be present. The limits apply to units where oligotrophic lake vegetation is a key habitat (see tables in annex 3 of the plan).	*Upper limits:* N/A. *Lower limits:* Submerged plant beds present to a depth of at least 3m. AND: Floating-leaved plants present.
A.4 Non-native invasive species	Non-native invasive species compete aggressively with native plants and animals and cause major changes to the ecosystem. They may cause native species to become extinct. Many are very difficult to control or eradicate, once established. The limits apply to units where oligotrophic lake vegetation is a key habitat (see tables in annex 3 of the plan).	*Upper limits:* Non-native plants and animals, such as Canadian waterweed, New Zealand pigmyweed and zebra mussel, are absent. *Lower limit:* None.
Typical plants of oligotrophic lakes: Intermediate water-starwort; Water lobelia; Shoreweed; Spring quillwort; Quillwort; Floating water-plantain; Alternate water-milfoil; Floating-leaved pondweeds (*Potamogeton* spp.); Floating bur-reed; Awlwort; Stoneworts (*Chara* & *Nitella* spp.)		

Performance indicators for factors affecting the feature		
Factor	***Factor rationale and other comments***	***Operational Limits***
F.1 Water quality	The water quality should be appropriate to support the ecosystem. In particular, there should be no acidification or eutrophication (nutrient enrichment). Sources of acidification are from distant/diffuse sources and nutrients are mainly from diffuse sources in the catchment. The limits apply to units where oligotrophic lake vegetation is a key habitat (see tables in annex 3 of the plan). Limits based on CCW Contract Science Report 705, Site Condition Assessments of Welsh SAC and SSSI Standing Water Features (2006).	*Upper limits:* Annual mean total phosphorus (TP) not exceeding 10 $\mu g l^{-1}$ *Lower limits:* pH 5.5 AND: Acid neutralising capacity (ANC) greater than 20 $\mu eq l^{-1}$ AND: More than 5 $\mu g l^{-1}$ dissolved oxygen (O_2) throughout the water column.
F.2 Hydrology	The supply of water entering and leaving the lakes should follow a natural seasonal cycle as far as possible. Water from Dolymynach Reservoir is used to support the public supply abstraction at Foel (Garreg-ddu Reservoir) but it is constantly topped up by compensation water released from Claerwen Reservoir and so water level fluctuations are not great.	*Upper limits:* No alterations to existing dams or creation of new structures that will reduce inflow or deepening, or enlargement of outflow points AND: No changes to the abstraction/compensation release regime that are likely to have a significant negative impact on Dolymynach Reservoir *Lower limit:* N/A
F.3 Sediment loads and lake substrate	Un-naturally high sediment loads in run-off entering the lakes can affect plant growth by reducing light levels and causing nutrient enrichment. This also leads to an accumulation of sediment on the lakebed, smothering the vegetation that grows there. Many of the typical plants cannot thrive if the lakebed is covered in peat.	*Upper Limits:* No cultivation, peat removal, ditch cleaning, burning or other activities likely to cause erosion in the catchments of lakes located in un-enclosed upland areas AND: No activities in the catchment of Dolmynach Reservoir that are likely to lead to a significant increase in sedimentation. *Lower limit:* N/A
F3. Air Quality	Air pollution may be responsible for acidification and nutrient inputs, especially where lake catchments have a poor buffering capacity.	See 4.1 above.

4.7 Conservation Objective for Feature 7: 1831 Floating water-plantain *Luronium natans*

Vision for feature 7

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

- The floating water-plantain populations are viable throughout their current distribution in the plan area (maintaining themselves on a long-term basis), namely in Llyn Cerrigllwydion Uchaf, Llyn Cerrigllwydion Isaf, Gwynllyn and Llyn Gynon.
- Each floating water-plantain population will be able to complete sexual and/or vegetative reproduction successfully.
- Potential for genetic exchange between floating water-plantain populations, in and/or outside the plan area, will be evident in the long-term.
- Near-natural hydrological and geomorphological processes and forms will be operating in the 4 lakes e.g. water levels, water depth, stability of bed substrate, with no artificial regulation of water levels or altered sediment regimes.
- Low nutrient and shade levels will be maintained, with no species present indicative of unfavourable conditions e.g. filamentous algae.
- The dispersal of floating water plantain will be unhindered.
- There will be no non-native invasive species present.
- All factors affecting the achievement of the above conditions are under control.

Performance indicators for Feature 7

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

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Distribution	The species is only found currently (2006) in three lakes within the Elenydd SAC. It forms grows on the lake bottoms in fairly deep water so it is extremely difficult to estimate population size. It rarely flowers, except under conditions of drought, making if quite difficult even to confirm its presence. Consequently, it difficult to justify assessing occupied habitat every reporting period, especially given the relatively undisturbed nature of this site.	*Upper limit*: N/A *Lower limit*: Vegetative material present in each of Llyn Cerrigllwydion Uchaf, Llyn Cerrigllwydion Isaf, Gwynllyn and Llyn Gynon.
A2. Evidence of successful regeneration	Where populations reproduce principally, or exclusively, through vegetative means, evidence of regeneration may be difficult to observe, especially given the location of the plants. Perennial populations should exhibit a range of plant sizes as this implies that there is a range of different aged individuals.	*Upper limit*: N/A *Lower limit*: Plants of differing sizes present in each of the lakes named above.

Performance indicators for factors affecting the feature		
Factor	***Factor rationale and other comments***	***Operational Limits***
F1. Water clarity	The species can only thrive on the lakebeds where there is good light penetration. Water clarity is also affected by sediment load (see 4.6 above). Limit applies to all three lakes where floating water-plantain occurs.	*Upper limit*: N/A *Lower limit:* The water should be sufficiently clear for floating water-plantain beds to be clearly visible in water up to 1.5m deep.
F.1 Water quality	The same limits that are appropriate for oligotrophic lakes in general should apply.	See 4.6 above.
F.2 Hydrology	The same limits that are appropriate for oligotrophic lakes in general should apply, although floating water-plantain may be less vulnerable to summer draw-down than other elements of the vegetation. Indeed natural droughts may encourage flowering and sexual reproduction.	See 4.6 above.

4.8 Conservation Objective for Feature 8: A074 breeding Red Kite *Milvus milvus*

Vision for feature 8

- The SPA area continues to support at least 15 pairs of breeding red kites, or 0.5% of the British population.
- Traditional nest sites within the SPA continue to be used.
- The extent of suitable semi-natural feeding habitat within the SPA is maintained.
- Availability of carrion within the SPA is maintained.
- Roosting sites within the SPA are maintained.
- All factors affecting the achievement of these conditions are under control.

Performance indicators for Feature 8

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

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Population size	A proportion of the population breeds within the SPA. It is important that these traditional breeding sites continue to be used in order to maintain an even distribution of birds across the site. Owing in part to recent re-introduction programmes, the GB population is still changing significantly and population estimates and thresholds will be reviewed sometime in the future.	*Upper limit:* None. *Lower limit:* At least 15 pairs of kites nest regularly within the ~~site~~ SPA, or within 2km of the boundary.
A2. Distribution	See above.	*Upper Limit:* None. *Lower limit:* Kites continue to breed regularly in all the main areas used in 2007.
A3. Breeding Success	Production of replacement adults must be sufficient to maintain the population in the long term. Targets should allow for natural fluctuations in breeding success from year to year. Limit applies to 90% of a sample of nest sites (to be agreed with the Kite Conservation Trust).	*Upper Limit:* None. *Lower Limit:* 1 fledged young/nesting pair/year

Performance indicators for factors affecting the feature		
Factor	***Factor rationale and other comments***	***Operational Limits***
F1. Habitat Extent	Kites utilise a range of semi-natural habitats for feeding. Small mammals and birds require some cover, whilst sheep carrion is more frequent in fairly intensively grazed areas. Worms and insects are most abundant in traditionally managed grasslands.	*Upper limit:* None. *Lower limit:* The total extent of suitable semi-natural habitat within the SPA is the same as it was in 2006 (shown on aerial photographs) and the habitat proportions are roughly the same.
F2. Availability of Carrion	Carrion availability is not directly linked to sheep numbers. Weather plays a major role in mortality and carcasses in remote areas are important.	*Upper limit:* None. *Lower limit:* There should continue to be some grazing on the main hill areas throughout the site.
F3. Disturbance	Birds of prey may desert their eggs and young as a result of nest disturbance by humans or displacement of adults may leave the nest open to predation.	*Upper limit*: no breeding attempts to be known to fail because of impact of human disturbance. *Lower limit*: None set.
F~~3~~4. Roosting Sites	Many kites gather to roost in the Hafod area.	*Upper limit:* None. *Lower limit:* The woodland at Hafod remains suitable for roosting kites.

4.9 Conservation Objective for Feature 9: A098 breeding Merlin *Falco columbaris*

Vision for feature 9

- The SPA area continues to support at least 7 pairs of breeding merlins, or 0.5% of the British population.
- Traditional nest sites within the SPA continue to be used.
- The extent of suitable semi-natural feeding habitat within the SPA is maintained.
- All factors affecting the achievement of these conditions are under control.

Performance indicators for Feature 9

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

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Population size	One breeding site is known in the central part of the SPA. It is important that this area continues to be used in order to maintain an even distribution of birds.	*Upper limit:* None. *Lower limit:* At least 7 pairs of Merlins regularly nest within the SPA, or close by AND: 1 pair of merlins nest regularly within the central part of the Elenydd SSSI.
Performance indicators for factors affecting the feature		
Factor	***Factor rationale and other comments***	***Operational Limits***
F1. Habitat Extent	Merlins use a range of semi-natural habitats for feeding but "ffridd" areas with good cover support the highest densities of small birds on which they prey.	*Upper limit:* None. *Lower limit:* The total extent of suitable semi-natural habitat within the SPA is the same as it was in 2006 (shown on aerial photographs) and the habitat proportions are roughly the same.
F2. Disturbance	See 8.4 above.	See 8.4 above.

4.10 Conservation Objective for Feature 10: A103 breeding Peregrine *Falco peregrinus*

Vision for feature 10

- The SPA area continues to support at least 15 pairs of breeding peregrines, or 0.5% of the British population.
- Traditional nest sites within the SPA continue to be used.
- The extent of suitable semi-natural feeding habitat within the SPA is maintained.
- All factors affecting the achievement of these conditions are under control.

Performance indicators for Feature 10

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

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Population size	Suitable nesting sites (cliffs and quarries) are a limiting factor so it is important that the majority of the traditional breeding sites within the SPA continue to be used.	*Upper limit:* None. *Lower limit:* At least 15 pairs nest regularly within or adjacent to the SPA and are supported by the SPA.
A2. Distribution	See above.	*Upper Limit:* None. *Lower limit:* Peregrines continue to breed regularly in all the main areas used in 2002.
Performance indicators for factors affecting the feature		
Factor	***Factor rationale and other comments***	***Operational Limits***
F1. Habitat Extent	Peregrines prey on a wide range of other birds using a variety of semi-natural habitats (including woodland) but they tend to favour the valley areas below their hillside nest sites during the breeding season.	*Upper limit:* None. *Lower limit:* The total extent of suitable semi-natural habitat within the SPA is the same as it was in 2006 (shown on aerial photographs) and the habitat proportions are roughly the same.
F2. Disturbance	See 8.4 above.	See 8.4 above.

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: 7130 Blanket bogs

Conservation status (2006)

Status within the **Elenydd SAC: Un-favourable.** Based on condition assessment in 2002 in two site units where blanket bog is a key habitat, which concluded that feature condition was unfavourable, declining, due to an insufficient cover of positive indicator plants; and a continuing failure to meet targets for the deposition of atmospheric pollutants within the local area, which is likely to be having a detrimental effect on the bog vegetation.

For the **Elenydd SSSI,** conservation status within the site is also deemed to be **un-favourable.** Overall feature condition is considered to be unfavourable, declining. In addition to the reasons outlined above, some of the key units for this habitat away from the SAC are known to be subject to unauthorised burning and heavy grazing in places, which is leading to excessive peat erosion.

For the **Marcheini Uplands, Gilfach Farm & Gamallt SSSI**, conservation status within the site is unknown, but probably unfavourable due the impact off atmospheric pollutants whose sources are not yet under control. There have been no assessments since 2000.

For the **Llynoedd Ieuan SSSI**, conservation status within the site is unknown, but probably unfavourable due the impact off atmospheric pollutants whose sources are not yet under control.

Management Requirements of Feature 1

Grazing

Bog vegetation is particularly sensitive to grazing damage, which may lead to serious erosion. Grazing in autumn and winter, particularly by sheep, is damaging to the dwarf shrubs and should be avoided. Areas used by breeding waders and other ground nesting birds should not be grazed too heavily during the breeding season so as to prevent trampling damage to nests and young. A suitable mixed grazing regime should be established/maintained across the un-fenced parts of the sites.

Drainage

Those plants restricted to the bogs and other wetland areas benefit from impeded drainage, and these also tend to be the areas that are most productive as feeding areas for waders, such as golden plover, dunlin, curlew and snipe. The bogs, wet heathland, springs, flushes and marshy grassland are all vulnerable to drying out as a result of drainage. The natural drainage pattern must not be altered and any old drainage ditches should not be maintained. It may also be desirable to block some existing drainage channels to restore water levels and prevent the bogs from eroding.

Atmospheric Pollution/Acidification

Several widespread ongoing human-induced processes are changing the environmental and ecological conditions and are causing concern in upland areas in Britain. These include acidification, due to atmospheric pollution, and nutrient enrichment (especially increased nitrogen and phosphorus), through a combination of atmospheric pollution, excessive dunging/urination in areas where stock preferentially graze and other inputs from diffuse sources. Dwarf shrubs, mosses, liverworts and lichens are particularly vulnerable to pollution from atmospheric sources.

Much of this atmospheric pollution comes from distant, diffuse sources, such as traffic and domestic emissions, but some can be attributed to large point sources, such as major power stations or industrial processes. If particularly damaging, current point sources (or groups of point sources) can be identified, then emissions should be regulated to reduce the impacts. However, it will also be very important for wider measures to be taken, at Government and international levels, to reduce air pollution

Soil Fertility

Soil fertility at this site is naturally low and bogs are particularly sensitive to nutrient inputs. Consequently, no fertilisers should be applied in the open hill areas.

Supplementary stock feeding can lead to localised damage of the sward and cause poaching and gradual nutrient enrichment. Feeding, where necessary, should be confined to less sensitive upland vegetation or agriculturally improved areas. Care should be taken to avoid run-off into more sensitive areas.

Access & Recreational Use

Unauthorised vehicle use is a threat to the moorland areas, which are easily accessible from designated By-ways. Bog and heath vegetation is easily damaged and may take a long time to recover. Ground nesting birds may be disturbed during the breeding season.

Some By-ways, such as sections of the Monks Trod, have become impassable to vehicles encouraging motorcycles to deviate onto sensitive bog areas. This causes considerable damage and disturbance. If a durable surface cannot be installed and maintained on these routes, then motor vehicles should be restricted or diverted away from sensitive areas. Owners and occupiers should co-operate with the police and other statutory bodies to undertake enforcement action where possible and discourage use by off-road vehicles away from legally designated routes.

Although the hill land within the site is subject to rights of public access on foot, such use does not appear to be so intensive as to cause habitat damage or significant disturbance to bird life. However, the impact of this use needs to be monitored and any significant damage or disturbance addressed by appropriate access restrictions if necessary.

Some moorland areas within Elenydd SSSI are also used for military training and occasionally for other organized events and activities, such as orienteering and paragliding. Such use is entirely at the discretion of the landowners and occupiers, who should ensure there is no damage or disturbance to the features of interest. Generally, off-road vehicle use should be avoided, as should sensitive bird areas during the breeding season.

Burning

Bogs, wet heath and other wetland areas should not be burnt, as burning is likely to damage important plant and animal species, especially bog mosses ground nesting birds. It can also encourage the growth of purple-moor grass and mat-grass and can cause peat erosion.

5.2 Conservation Status and Management Requirements of Feature 2: 4030 European dry heaths

Conservation status (2006)

Status within the **Elenydd SAC: Un-favourable.** Based on an subjective assessment in 2004 of one site unit where dry heath is a key habitat, which indicated that there was insufficient dwarf shrub cover; and a continuing failure to meet targets for the deposition of atmospheric pollutants, which is likely to be having a detrimental effect on the dry heath vegetation.

Status within the **Cwm Doethie-Mynydd Mallaen SAC/SSSI: Un-favourable.** A **c**ondition assessment in 2004, in selected site units where dry heath is a key habitat, concluded that the feature was in unfavourable, recovering condition. However, the habitat may be subject to ongoing damage from atmospheric pollutants, a factor that is not yet under control.

Status within the **Coetiroedd Cwm Elan SAC: Favourable** A **c**ondition assessment in 2004, in one site unit where dry heath is a key habitat, measured more than 1% cover of invasive rhododendron but other attributes measured fell within acceptable limits and the rhododendron has since been removed. Air pollution is not thought to be a significant problem in the sheltered woodland fringe areas.

For the **Elenydd SSSI,** conservation status within the site is also deemed to be **un-favourable.** Overall feature condition is considered to be unfavourable, declining. In addition to the reasons outlined above for Elenydd SAC, some of the key units for this habitat away from the SAC are known to be subject to heavy grazing pressure, which is leading to loss of dwarf shrubs and replacement with a grassy sward.

For the **Marcheini Uplands, Gilfach Farm & Gamallt SSSI**, conservation status within the site is **unknown**. There are no recent whole site assessments available but condition of units visited since 2000 is generally considered to be favourable or unfavourable, recovering.

For the **Carn Gafallt SSSI**, conservation status within the site is thought to be **un-favourable**, due to the even-aged nature of much of the heather canopy and encroachment by invasive bracken in several areas. These issues have yet to be addressed.

Management Requirements of Feature 2

Grazing

Heavy grazing, particularly in autumn and winter, is damaging to the dwarf shrubs and should be avoided. A suitable mixed grazing regime should be established/maintained across the un-fenced parts of the sites.

Burning and Cutting

Burning can be a useful management tool for maintaining varied structure within the mature dry heathland areas on relatively level ground and for providing habitat for breeding grouse, provided that it forms part of an approved cycle of management. It is important to ensure that such management does not damage the woodland, rock, scree or ffridd areas or encourage the spread of bracken. Burning in combination with intense grazing can also result in the loss of those shrub species that give this habitat its characteristic appearance.

Wet heath and other wetland areas, steep slopes and rocky areas should not normally be burnt, as burning is likely to damage important plant and animal species, especially bog mosses, clubmosses and ground nesting birds.

Cutting is a possible alternative to burning for heathland management in the drier areas, where vehicle access is possible, and can also be usefully employed to create firebreaks. If cutting is carried out, care must be taken to remove the resultant litter, or germination of seedlings will be inhibited. Care must be taken to ensure that machinery does not cause damage to fragile peat soils.

In damper areas, where heather is layering, burning and cutting are not needed.

Soil Fertility

Soil fertility at this site is naturally low and heathland areas are particularly sensitive to nutrient inputs. Consequently, no fertilisers should be applied in the open hill areas.

Supplementary stock feeding can lead to localised damage of the sward and cause poaching and gradual nutrient enrichment. Feeding, where necessary, should be confined to less sensitive upland vegetation or agriculturally improved areas. Care should be taken to avoid run-off into more sensitive areas.

Atmospheric Pollution/Acidification

See 5.1 above.

Access & Recreational Use

See 5.1 above.

5.3 Conservation Status and Management Requirements of Feature 3: 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

Conservation status (2006)

Status within the **Cwm Doethie-Mynydd Mallaen SAC/SSSI: Un-favourable. C**ondition assessment in 2006, in selected site units where dry heath is a key habitat, concluded that the feature in these units was in favourable, maintained condition. However, this assessment used performance indicators that differed significantly from those given in this plan (with the exception of those for tree and shrub re-generation) and in-appropriate grazing is still thought to be a problem in some other units that were not assessed in 2006.

Status within the **Coetiroedd Cwm Elan SAC: Un-favourable.** A **c**ondition assessment in 2004, in three site units where oak woodland is a key habitat, indicated that these units may be in favourable, maintained condition. However, in-appropriate grazing is still a problem in some units and this factor that is not yet under control.

For the **Elenydd SSSI,** conservation status within the site is also deemed to be **un-favourable.** Overall feature condition is considered to be unfavourable, declining. There are many areas with poor structure and little tree and shrub re-generation.

For the **Marcheini Uplands, Gilfach Farm & Gamallt SSSI**, conservation status within the site is **unknown**. There are no recent whole site assessments available but condition of units visited since 2000 is generally considered to be favourable or unfavourable, recovering.

For the **Carn Gaffalt SSSI,** conservation status within the site is **unknown**, as there has been no recent assessment that covered all of the units where it occurs. However, the majority of key areas are thought to be in favourable, maintained or unfavourable, recovering condition.

For the **Cwm Gwynllyn SSSI,** conservation status within the site is deemed to be **un-favourable.** Overall feature condition is believed to be unfavourable, declining. There probably still some ongoing grazing damage.

For the **Coedydd Glannau a Cwm Coel SSSI,** conservation status within the site is also deemed to be **favourable.** Overall feature condition is believed to be unfavourable, recovering.

For the **Coed yr Allt-goch SSSI,** conservation status within the site is deemed to be **favourable.** Overall feature condition is believed to be unfavourable, recovering.

For the **Cerrig Gwalch SSSI,** conservation status within the site is deemed to be **favourable.** Overall feature condition is considered to be favourable, maintained.

For the **Caban Lakeside Woodlands SSSI,** conservation status within the site is deemed to be **favourable.** Overall feature condition is considered to be favourable, maintained.

Management Requirements of Feature 3

Grazing

Low levels of sheep grazing can be beneficial to the mosses, liverworts and lichens in the oak woodland. However, continuous grazing is likely to prevent tree regeneration in the long term and may damage the field and shrub layers, where these elements are present. Heavy stocking could also damage moss and liverwort carpets and cause soil erosion on the steeper slopes.

Different grazing regimes are required in different types of oak woodland. The more open 'park-like' areas require regular grazing during the growing season. The main oak woodland blocks may need periodic grazing to maintain a fairly open ground layer but would benefit from stock exclusion in the short-term to allow the woodland to regenerate, develop an understorey where possible and build up the levels of dead wood. In the longer term a continuous, very low stocking density may be more appropriate in some areas.

Woodland management

The woodland should be encouraged to develop a diverse structure, with mature and over-mature trees and sufficient natural regeneration of native trees and shrubs. As far as possible natural processes will be allowed to operate, with any active management limited to that required for the control of non-native species (see below) and for safety reasons along the footpaths. The regeneration of oak and ash in particular requires plenty of light to encourage the growth of any seedlings into viable saplings. Natural instability on the steeper slopes, cliffs and scree may create large canopy gaps on a fairly regular basis but, elsewhere, gaps arising from tree death will be rare in the short to medium term and they may be too small to permit the establishment of young trees. In this case, the enlargement of natural gaps and the creation of new gaps by selective felling might be considered in the longer term.

Very old trees are in short supply. The majority of trees in many of the plan units are of middle years and have yet to develop the characteristic holes, crevices and dead wood of veteran trees. Every effort should be made to extend the life of existing veteran trees for as long as possible. Judicious tree surgery can lighten large limbs without harming the lower plant interest and reduce the risk of collapse of the trunk or wind throw of the entire tree. Competing woody species and climbers can be removed by cutting.

Dead and decaying wood should normally be retained in the woods, though some of this is likely to fall to the bottom of the steeper slopes. Wherever possible, standing dead trees should be allowed to fall naturally. Dead wood is important for its associated fauna and flora and is also essential to nutrient recycling and restoring soil nutrients. Dead wood continues to support lower plants and once the bark falls off, standing dead trees can support specialised lichen species. Movement and cutting/tidying of dead wood should be avoided unless essential for public and livestock safety.

Any woodland management work should be undertaken between August and January so as not to disturb breeding birds and all trees providing important nesting sites should be retained.

Many woodland mosses, liverworts and lichens need high humidity levels. Humidity may be reduced by excessive opening of the canopy, or loss of adjacent woodland cover. Any proposal to fell and replant within, or adjacent to, areas that are important for lower plants, should be assessed for its potential impact on the mosses, liverworts and lichens. Where felling and replanting is proposed, a "continuous-cover" system should be used to avoid excessive opening of the tree canopy. This could take the form of phased removal of non-native trees and restocking by natural regeneration.

Control of invasive non-native trees and shrubs

Beech is a particular concern as it can regenerate vigorously under an oak canopy, and when mature can suppress and alter the ground flora. In mid Wales beech supports few lichens of any interest. Mature conifers can cast dense shade but are less able to regenerate from seed within the oak woodland. Sycamore has potential to invade areas where the soil is deeper and less acidic but large trees can support uncommon lichens. Rhododendron is highly invasive and represents a serious threat to the woodland in the absence of grazing. Removal of beech and conifers may be agreed following assessment of their wildlife interest. There may be areas where it would be desirable to retain these trees in the canopy in the short term in order to maintain humidity for the lower plants (see above). In the vicinity of the former Cwm Elan House and the Hafod Estate area, the large beech trees are a feature of the historic landscape and they also represent a large potential dead wood habitat of the

future, so management should aim to control their spread into other areas. All sycamores should be removed from the ash woodland but mature trees supporting good lichen communities should be retained elsewhere, provided that all saplings and young trees are removed. All rhododendron should be cleared from the woodland and any re-growth spot-treated with herbicide. Work should be carried out outside the bird breeding season.

Disturbance

Some woodland breeding birds are particularly sensitive to disturbance during the nesting season. Public access to areas used by these species should be restricted between February and July.

5.4 Conservation Status and Management Requirements of Feature 4: 9180 *Tilio-Acerion* forests of slopes, screes and ravines

Conservation status (2006)

Status within the **Coetiroedd Cwm Elan SAC & Cerrig Gwalch SSSI: Favourable.** The key areas of ash woodland at Cerrig Gwalch are located on cliffs that are inaccessible to livestock and the habitat here is thought to be in favourable, maintained condition. The small patch of ash woodland within the SAC at Cnwch wood is believed to be in un-favourable, recovering condition.

For the **Carn Gaffalt SSSI,** conservation status within the site is **unknown**, as there has been no recent assessment that covered all of the units where it occurs. However, the majority of areas are thought to be in favourable, maintained or unfavourable, recovering condition.

Management Requirements of Feature 4

Grazing

Grazing limits the woodland's ability to regenerate naturally and is particularly damaging to the ash woodland ground flora. The majority of the ash woodland should be protected from grazing stock. However, light grazing may be needed in some areas to control the spread of the more competitive elements of the ground flora, like bramble. The long-term aim is to establish and maintain a grazing regime that most closely mimics the level that would be expected in a natural, unmanaged woodland.

Woodland management

See 5.3 above.

Control of invasive non-native trees and shrubs

See 5.3 above.

Disturbance

See 5.3 above.

5.5 Conservation Status and Management Requirements of Feature 5: 6130 Calaminarian grasslands of the *Violetalia calaminariae*

Conservation status (2006)

Status within the **Elenydd SAC: Un-favourable.** Based on condition assessment in 2005 of the Cwmystwyth mine area, which indicated that the feature was in un-favourable, declining condition, due to recreational disturbance and lack of remedial management. However, some Actions are underway to remedy this (see below).

For the **Elenydd SSSI**, conservation status within the site is **unknown**. There have been no assessments of non-SAC mine sites since 2000.

Management Requirements of Feature 5

Grazing

Continued light grazing is required to prevent the growth of tall herbs, scrub and woodland, which could shade-out lichen communities. Heavy grazing could lead to disturbance of the substrate and nutrient enrichment, and stock feeding would cause similar problems.

Stock Feeding

Some of the mine areas have been used as hard standing for stock feeding. This activity needs to be carefully controlled and discussions should be entered into with the landowners to control this damaging activity.

Control of recreational activities

Disturbance by off-road 4x4 vehicles and motorcyclists and cyclists has been a concern for some years, and erection of a joint CCW/Police notice on the road gate in 2005 has not been effective. Further signs are planned on the site, and work is underway to ascertain whether permission is necessary under Section 194 of the Law of Property Act 1925, as the land is common land. The landowners and neighbours are agreeable to the actions.

Dumping

Dumping of rubbish in shafts and buildings and at the side of the road has been an historical problem, but fencing of some of the shafts and adits for safety reasons has helped prevent this. Continued monitoring is needed along the roadside with action if necessary to clear dumped material and measures to discourage further activities.

5.6 Conservation Status and Management Requirements of Feature 6: 3130 Oligotrophic to mesotrophic standing waters of the *Isoeto-Nanojuncetea*

Conservation status (2006)

Status within the **Elenydd SAC: Un-favourable.** Based on surveys carried out in 2003 & 2004 and analysis water samples taken between 2003 and 2005 at Llyn Gynon and Llyn Cerrigllwyidion Isaf, feature condition was reported as unfavourable, unclassified. This is because the acid neutralising capacity (ANC) at Llyn Cerrigllwydion Isaf was well under the lower limit, although other biological and water chemistry attributes appeared to be within limits. As general atmospheric pollution exceeds critical levels and is still not under control, conservation status cannot be considered favourable until the ANC value at Llyn Cerrigllwydion Isaf is at least greater than zero.

For the **Elenydd SSSI**, conservation status within the site is unknown. There have been no assessments of non-SAC lakes since 2000.

For the **Llynoedd Ieuan SSSI**, conservation status within the site is unknown.

Management Requirements of Feature 6

Water quality

A low nutrient status in the lakes should be maintained by avoiding heavy grazing, feeding of stock and use of fertilisers and pesticides where there is any potential for run-off into the lake.

Hydrology

The upland lakes are dependent on the maintenance of a fairly constant water level throughout the year. Most of the water plants are adapted to grow in a particular depth of water, although some, such as floating water plantain, can withstand greater fluctuations in water level. The water levels in the upland lakes should not be altered artificially.

Atmospheric Pollution/Acidification

See 5.1 above.

5.7 Conservation Status and Management Requirements of Feature 7: 1831 Floating water-plantain *Luronium natans*

Conservation status (2006)

Status within the **Elenydd SAC: Un-favourable.** Surveys of water plants carried out in 2003 & 2004 and analysis water samples taken between 2003 and 2005 at Llyn Gynon and Llyn Cerrigllwyidion Isaf, recorded floating water-plantain in both lakes but the acid neutralising capacity (ANC) at Llyn Cerrigllwydion Isaf was well under the lower limit, although other water chemistry attributes appeared to be within limits. The low ANC value at this lake may be partly due to the higher proportion of peat bog within its catchment, compared to the other two lakes where floating water-plantain occurs, and there is no evidence that the species has declined here since previous surveys. However, as general atmospheric pollution still exceeds critical levels the population in this lake must be considered as vulnerable and conservation status cannot be considered favourable until the problem has been addressed or the species is shown not to be at risk.

Management Requirements of Feature 7

Water quality

See 5.6 above

Atmospheric Pollution/Acidification

See 5.1 above.

5.8 Conservation Status and Management Requirements of Feature 8: A074 breeding Red Kite *Milvus milvus*

Conservation status (2006)

Status within the **Elenydd – Mallaen SPA: Favourable.** Based information received from the Kite Conservation Trust (2007). The extent of potential feeding habitat within the sites and carrion availability are believed to be sufficient to support the breeding population in the long term.

Management Requirements of Feature 8

Woodland Management

In broadleaved and coniferous areas used by breeding birds of prey any woodland management work should be undertaken between September and January so as not to disturb breeding birds and all trees providing important nesting sites should be retained.

Grazing

Appropriate grazing regimes should be established and maintained throughout the sites. This will ensure that the semi-natural habitats used by feeding kites will be maintained in a condition that supports sufficient prey animals and will ensure a continuing supply of carrion (see also 5.1 - 5.5 above).

Soil Fertility

Soil fertility at this site is naturally low, although some of the enclosed land is agriculturally improved pasture, maintained by the application of fertilisers. Occasional light applications of farmyard manure may actually maintain the plant diversity in some of the enclosed grassland areas. Away from these areas, the application of any agricultural fertilisers, including lime, slurry and manure, will have a detrimental effect on the vegetation. Bogs, dry heathland and ffridd areas are particularly sensitive to nutrient inputs.

Burning and Cutting

See 5.2 above.

Drainage

See 5.1 above.

Engineering Works and Development

The area contains several major dams, water pipelines, roads, bridges and disused mines and quarries. Operational structures require periodic repair and maintenance and this work should be carefully planned and undertaken in a sensitive manner, so that there is minimal impact on the habitats and species of interest.

Major new projects, such as dams, pipelines, and hydro schemes and power lines, could have a significant impact and should be carefully assessed in accordance with environmental regulations. Wind turbines may present a collision risk to birds of prey and may cause disturbance to breeding birds, such as ground nesting waders. Consideration of these effects on birds must be given when developments are proposed on or near to the site.

Access & Recreational Use

Some rare breeding birds are sensitive to disturbance during the nesting season. Public access to some areas used by these sensitive birds may need to be restricted between February and July.

5.9 Conservation Status and Management Requirements of Feature 9: A098 breeding Merlin *Falco columbarius*

Conservation status (2006)

Status within the **Elenydd – Mallaen SPA: Favourable.** A survey of the Elenydd - Mallaen area in 2003 located 11 probable breeding pairs, indicating that feature condition was favourable, maintained. The extent of potential feeding habitat within the sites is believed to be sufficient to support the breeding population in the long term.

Management Requirements of Feature 9

Grazing

Appropriate grazing regimes should be established and maintained throughout the sites. This will ensure that suitable heather moorland habitat is present and that the other semi-natural habitats used for feeding are maintained in a condition that supports sufficient small birds (see also 5.1 - 5.5 above).

Soil Fertility

See 5.8 above.

Burning and Cutting

See 5.2 above.

Drainage

See 5.1 above.

Woodland Management

See 5.8 above.

Engineering Works and Development

See 5.8 above.

Access & Recreational Use

See 5.8 above.

5.10 Conservation Status and Management Requirements of Feature 9: A103 breeding Peregrine *Falco peregrinus*

Conservation status (2006)

Status within the **Elenydd – Mallaen SPA: Favourable.** The results of the national survey in 2002 indicated that the condition of the feature in the SPA area was favourable, maintained. The extent of potential feeding habitat within the sites is believed to be sufficient to support the breeding population in the long term.

Management Requirements of Feature 10

Engineering Works and Development

The site contains several major dams, water pipelines, roads, bridges and disused mines and quarries. Operational structures require periodic repair and maintenance and this work should be carefully planned and undertaken in a sensitive manner, so that there is minimal impact on the habitats and species of interest.

Major new projects, such as dams, pipelines, and hydro schemes and power lines, could have a significant impact and should be carefully assessed in accordance with environmental regulations. The impact of re-opening of old quarries will also need to be considered in a similar way, although this may offer new opportunities for nesting peregrines.

Wind turbines may present a collision risk to birds of prey and may cause disturbance to breeding birds, such as ground nesting waders. Consideration of these effects on birds must be given when developments are proposed on or near to the site.

Access & Recreational Use

Breeding peregrines and other birds may be disturbed by climbers. Any rock climbing should be confined to suitable areas and be subject to an agreed code of conduct in order to minimise such damage and disturbance. Public access to some areas used by these sensitive birds may need to be restricted between February and July.

Grazing

See 5.8 above.

Soil Fertility

See 5.8 above.

Burning and Cutting

See 5.2 above.

Drainage

See 5.1 above.

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: Elenydd – Mallaen SPA

No bird specific actions but habitat related actions are outlined below in relation to the SACs and SSSIs.

Site Name(s): Elenydd (SAC)

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
1	000049	Glanhirin	There is a Tir Gofal agreement covering this holding. Stock reduction has been implemented during the summer months, and no grazing is carried out during the winter months. It is likely that atmospheric pollution in the form of NOx and SOx, is having a damaging impact on the blanket bog vegetation.	Yes
2	000051	Claerwen Farm	Tir Gofal agreement under negotiation (2007) that will include an appropriate grazing regime. There may be an issue with localised overgrazing, which needs further investigation. It is likely that air pollution, in the form of NOx and SOx, is having a damaging impact on the blanket bog vegetation.	Yes
8	000058	Gors Lwyd, Bodtalog	A Tir Gofal agreement is in place (2007) that should maintain a suitable grazing regime. It is likely that atmopheric pollution is having a damaging impact on the blanket bog vegetation.	Yes
25	000102	Marchnant Hill Land	Tir Gofal agreement in place to deliver required grazing management. Unconsented (accidental?) burning occurred in 2007, apparently originating on another holding. Atmospheric pollution may be damaging the blanket bog vegetation.	Yes
27	000105	Llanafan Hill (CL 65)	Blanket bog looked to be recovering from previous burning and appeared to be generally in good condition. Air pollution may be damaging the bog vegetation.	Yes
28	000107	Gro Hill	Tir Gofal agreement in place to deliver appropriate management. Blanket bog vegetation may be impacted by air pollution.	Yes
29	000108	Llanwrthwl Common	Continued problems with localised grazing damage to heather. A previous Tir Gofal application was not accepted. It is also likely that air pollution is impacting the bog vegetation.	Yes
31	000176	Bryn Garw (Pentre Hill Land)	There is an issue with heavy grazing on the lower slopes which should be resolved through Tir Gofal management prescriptions (2008). The blanket bog areas may be impacted by air pollution.	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
32	000177	Ty Llwyd (Hill Land)	There is a localised problem with heavy grazing affecting the dry heath vegetation. A Tir Gofal agreement is currently being negotiated (2008) which should resolve this problem. Air pollution may be damaging the bog vegetation.	Yes
34	000179	Abergwngu Hill	Suitable grazing management under Tir Gofal agreement (2008). The bog vegetation may be affected by air pollution.	Yes
35	000180	Blaen-y-cwm (Hill Land)	Heavy grazing pressure is affecting the heath vegetation locally a Tir Gofal agreement is being negotiated (2008) and the heath should improve as a result of the proposed grazing prescriptions. Possible introduction of short-horn cattle- impact of winter feeding (cake) will need monitoring. Air pollution may be having an impact on the blanket bog vegetation.	Yes
36	000181	Ty Mawr, Cwmystwyth (Hill Land)	Localised grazing damage to the dry heath in the past but now (2008) subject to a Tir Gofal agreement. Heath should improve as a result of grazing prescriptions. The bog vegetation may be being damaged by air pollution.	Yes
37	000182	Ty-newydd (Hill Land)	Localised grazing damage to dry heath but a Tir Gofal agreement is currently under negotiation (2008). Heath should improve as a result of grazing prescriptions. The blanket bog vegetation may be being damaged by air pollution.	Yes
38	000183	Dol-chenog (Hill Land)	Subject to a Tir Gofal agreement (2008). Habitats should improve as a result of grazing prescriptions, but winter grazing may be too high and should be reviewed. Bog vegetation may be being damaged by air pollution.	Yes
40	000185	Claerddu (Hill Land)	Subject to a Tir Gofal agreement (2008). Habitats should improve as a result of grazing prescriptions. Bog vegetation may be being damaged by air pollution.	Yes
41	000186	Claerddu (In-bye Land)	Part of a Tir Gofal agreement (2008). Air pollution may be affecting the bog vegetation.	Yes
42	000187	Trawsallt Uchaf	Air pollution may be damaging the blanket bog vegetation.	Yes
44	000191	Blaen Llyn Teifi (Tynddol)	In a Tir Gofal agreement, but may still be issues with grazing pressure, which need investigating. Air pollution may be damaging the bog vegetation.	Yes
47	000197	Hengae	In a Tir Gofal agreement (2008). Problems with illegal off-roading damaging the blanket bog, partly arising from the impassable condition of the unclassified road to Hengae ford. Air pollution may also be damaging the bog vegetation.	Yes
48	000198	Frongoch	In a Tir Gofal agreement (2008). Air pollution may be damaging the blanket bog vegetation.	Yes
50	000200	Nant Egnant Bog (Troed-y-rhiw)	In a Tir Gofal agreement (2008). Air pollution may be damaging the bog vegetation.	Yes
52	000202	Ty-canol/Banc-y-llyn	A Tir Gofal agreement is being negotiated (2008). Air pollution may be damaging the blanket bog vegetation.	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
53	000203	Garreglwyd (Old Abbey)	In a Tir Gofal agreement (2008). Air pollution may be damaging the blanket bog vegetation.	Yes
114	000614	Llyn Gynon	No known issues?	No
115	000615	Llynoedd Cerrig-llwydion	These lakes are vulnerable to acidification and air pollution may be having an impact.	Yes
118	000625	Llyn Gwngu	Dystrophic lake (not an SAC feature).	No
119	000627	Llyn Fyrddon Fawr	This lake type is not an SAC feature.	No
174	002498	Blaen Milwyn fields	Land does not support any SAC features of interest.	No
MC1	002701	Cwmystwyth Mine	Disturbance from off-road vehicles and fly tipping are on-going issues.	Yes
MC2	002702	Mine land, Ty-llwyd	No known issues.	No

Site Name(s): Coetiroedd Cwm Elan / Elan Valley Woodlands (SAC)

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
54	000255	Nant Dolfolau, North	No known issues.	No
55	000256	Nant Dolfolau, South	No known issues.	No
56	000257	Craig y Foel	Invasive rhododendron and self-sown conifers are present.	Yes
57	000258	Craig Cnwch	Rhododendron control should continue until complete eradication is achieved.	Yes
69	000568	Penygarreg Dam Woods	Invasive rhododendron present.	Yes
70	000570	Penygarreg Farm Woods	No known issues.	No
71	000571	Penygarreg Dam Plantation	No known issues.	No
76	000576	Coed y Foel	Invasive self-sown conifers are present.	Yes
77	000577	Craig Ddu/Treheslog Rocks	No known issues for this unit.	No
78	000578	Coed y Mynach	Heavily grazed woodland on common land.	Yes
79	000579	Nant-yr-haidd Wood	May be suffering from overgrazing.	Yes
80	000580	Llethr Llwyd	Suitable grazing management under a Tir Gofal agreement.	No

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
81	000581	Lower Llanfadog Woods	Stock excluded under a Tir Gofal agreement.	No
84	000584	Gro Woods	Suitable management under Woodland Grant Scheme.	No
85	000585	Nant Rhyd-goch/Dol-y-mynach Dam	Managed under a WGS scheme (2008).	No
86	000586	Dol-y-mynach Reservoir Wood	Managed under a WGS agreement but has invasive rhododendron.	Yes
88	000588	Pen-rhiwlan Wood, North	Suitable management under a Tir Gofal agreement.	No
98	000598	Coed Llan-fraith	No known issues.	No
99	000599	Craig y Mynach/Craig y Bwch	Suitable management under a Tir Gofal agreement (2008).	No
100	000600	Coed y Bwch	Suitable management under a Tir Gofal agreement (2008).	No
CG2	002665	Cwm Wood	No known issues.	No
CG3	002666	Cwm yr Esgob	Was under-grazed but light grazing has been re-instated, which should maintain the open areas.	No
CG4	002667	Allt Ddu	No known issues.	No
CG5	002668	Crawnant-fach Wood, South	No known issues.	No
CG6	002669	Crwnallt	Stock excluded under WGS agreement (expires 2008) but young conifers need removing.	Yes
CG7	002670	Cnwch Wood, South	Appropriate grazing management under a Tir Gofal agreement (2008).	No
CG8	002671	Cnwch Wood, East		No
CG9	002672	Cnwch Wood, West	Subject to WGS agreement (2008). Rhododendron control should continue.	Yes
CG10	002673	Erw Fawr - Coed Bwlch-glas	Suitable management under an agreement with CCW.	Yes
CG11	002674	Upper Talwrn Wood	Suitable management under an agreement with CCW.	Yes
CG12	002675	Lower Talwrn Wood	Suitable management under an agreement with CCW but the presence of rhododendron may be a threat.	Yes
CG13	002676	Perthi-llwydion Woods	Some sheep trespass from the common, especially at the western end.	Yes
CG14	002677	Blaen-y-cwm Wood	No known issues.	No
CG15	002678	Coppa Wood	No known issues.	No
CG20	002683	Perthi-llwydion meadow	No SAC habitat in this unit.	No

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
G1	002686	Y Wenallt	Damaged in the past by heavy grazing but stock are now excluded under an ESA agreement (2008).	No
G2	002687	Llawr Dderw Wood	May be affected by heavy grazing.	Yes
G5	002690	Upper Treheslog hillside	No known issues.	No
GC1	002704	Ty-n-y-llidiart Wood	Suitable management under a Tir Gofal agreement (2008).	No
GC2	002705	Glannau/Cwm Elan	Managed under a WGS agreement (2008) but has invasive rhododendron in the Nant Methan area.	Yes
GC3	002706	Cwm Elan, South	Suitable management under WGS agreement.	No
GC4	002707	Cwm Coel	Suitable management under a WGS agreement (2008).	No
GC5	002708	Nant Methan/Henfron	Suitable management under a Tir Gofal agreement (2008).	No
GC6	002709	Henfron Old Wood	Suitable management under a Tir Gofal agreement (2008).	No
GC7	002710	Blaen Coel Wood	Suitable management under a Tir Gofal agreement (2008).	No
A1	002711	Craig yr Allt-goch Wood	Suitable management through an agreement with CCW (expires 2010).	No
A2	002712	Coed yr Allt-goch uchaf	Suitable management through an agreement with CCW (expires 2010).	No
A3	002713	Coed yr Allt-goch isaf	No Known issues.	No
CG	002714	Cerrig-gwalch	No known issues.	No
CL	002715	Caban Lakeside Woodlands	Suitable management under a WGS agreement (2008).	No
56b	003037	Craig y Foel, non-SPA		No
76c	003039	Coed y Foel, non-SSSI		No

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
186	002514	Craig Pysgotwr/Cwm Doethie	Suitable grazing management under a Tir Gofal agreement (2008).	No
187	002515	Cwm Doethie, East	Application for Tir gofal (2008) but grazing regime already appears to be suitable.	No
188	002516	Craig Cnwch-glas	Conifers are invading the heathland areas. No other issues.	Yes
189	002517	Troed-rhiw-ruddwen Hill	Problems with ongoing land reclamation and fertiliser use. Grazing levels may be impacting on the heathland areas.	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
190	002518	Cribyn Du	No issues in relation to SAC features.	No
191	002519	Allt Maesmeddygon/Allt-y-berau	Formerly subject to an ESA agreement. The heathland area may need some grazing adjustments and there is problem with invasive bracken.	Yes
192	002520	Y Foel	Heathland may require some light grazing to create a more varied structure. Woodland managed appropriately under a Woodland Grant Scheme (2008).	Yes
193	002521	Tan-y-foel Hill	Appropriate management under a Tir Gofal agreement (2008).	No
194	002522	Troed-y-rhiw-bwlchau Hill	Was managed under an ESA agreement. May need a Tir Gofal agreement to continue appropriate management (2008).	No
195	002523	Allt Troed-y-rhiw-bwlchau/Cwm Rhyd-ifor	Part of the woodland was subject to management under a Woodland Grant Scheme, the rest of the area was managed under an ESA agreement but a Tir Gofal agreement may be needed to continue appropraiate management (2008).	No
196	002524	Troed-y-rhiw-hir Hill	Heathland damaged by grazing (2004).	Yes
197	002525	Craig Ddu, Gwenffrwd	The heathland at the northern end of this unit is being suppressed by grazing but the boundary is currently unfenced (2008).	Yes
198	002526	Rhandir-Owen Hill	Heathland damaged by grazing (2004).	Yes
199	002527	Blaen-nant-melyn Hill	Heathland being damaged by grazing (2004).	Yes
200	002528	Craig Bwlch-y-rhiw	Bracken is encroaching into the heathland. Subject to a Better Woodlands for Wales plan but details need checking.	Yes
201	002529	Cefn Branddu	There may be some localised grazing damage.	Yes
202	002530	Allt-y-berth	No known issues at present (2008).	No
203	002531	Allt-isaf	No known issues at present (2008).	No
204	002532	Allt-y-graig	Appropriate management under an agreement with CCW.	No
205	002533	Mynydd Mallaen	Parts of the common were being damaged by grazing (2004) but may now (2008) be recovering as a result of an ESA agreement. Bracken encroachment may be a problem in some areas.	Yes
206	002534	Mynydd Mallaen, Bwlch-y-rhiw	Managed under an ESA agreement but heathland was still being damaged by grazing in 2004.	Yes
207	002535	Troed-rhiw-cymmer land	Managed under a Tir Gofal agreement (2008) but woodland grazing prescriptions may be unsuitable.	Yes
208	002536	Allt Penrhiw-iar	Suitable management by CCW.	No
209	002537	Allt-rhyd-y-groes	Might benefit from some tree planting in the open areas.	Yes
210	002538	Allt-rhyd-y-groes-isaf	No known issues.	No
211	002539	Rhudd-allt	No known issues at present (2008).	No
212	002540	Dinas	May require some woodland management to achieve a more varied structure.	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
213	002541	Maes-y-meddygon Woods	No known issues at present (2008).	No
214	002542	Coed Gallt-y-bere	No known issues at present (2008).	No
215	002543	Abergwenffrwd Woods	No known issues at present (2008).	No
216	002544	Nant-rhyd-Iforland	Land subject to a Tir Gofal agreement (2008) but woodland grazing prescriptions may not be entirely appropriate.	Yes
217	002545	Coed Troed-y-rhiw-bwlchau	Suitable management under an ESA agreement (2008).	No
218	002546	Coedydd Glan Gwenffrwd	Suitable management under an ESA agreement (2008).	No
219	002547	Troed-rhiw-beynon ffridd	No known issues.	No
220	002548	Cwm Beudy woodland	Suitable management under an ESA agreement (2008).	No
221	002549	Troed-rhiw-gelynen, un-tenanted land	Suitable management under an ESA agreement (2008).	No
222	002550	Troed-rhiw-hir ffridd	Woodland may be heavily grazed (2008).	Yes
223	002551	Carreg Lymsi/ Lower Allt Troed-yr-heol	Structure may be improved by making some canopy gaps.	Yes
224	002552	Allt Troed-yr-heol	Appropriate management via an ESA agreement (2008).	No
225	002553	Rhandir-Owen	No known issues.	No
226	002554	Allt Blaen-nant-melyn	Appropriate management via an ESA agreement (2008).	No
227	002555	Allt Goch	Appropriate management via an ESA agreement (2008).	No
228	002556	Blaen-nant-melyn land	No known issues at present (2008).	No
229	002557	Bryn-arau-duon land	Most of the woodland managed appropriately under a Woodland Grant Scheme?	No
230	002558	Coed Nant-melyn-isaf	May need some light grazing to maintain bryophyte interest.	Yes
231	002559	Coed Nant-melyn-uchaf	No known issues.	No
232	002560	Coed Glan Cothi	No known issues.	No
233	002561	Allt llwyn-diried	Suitable management under an ESA agreement.	No
234	002563	Allt Fron-goch	Suitable management under an agreement with CCW, including gap creation to improve woodland structure.	No
235	002564	Coedydd Glyn-hebog	Appropriate management under an ESA agreement (2008).	No
236	002565	Allt yr Hebog, North	Creation of canopy gaps would improve woodland structure.	Yes
237	002566	Allt yr Hebog	Creation of canopy gaps will improve the woodland structure.	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
253	002583	Troed-rhiw-rhuddwen, enclosed land	No known issues.	No
254	002584	Troed-rhiw-rhuddwen, bracken field	No known issues.	No
255	002585	Dinas gauging station	No known issues.	No
256	002586	Riverside land, Troed-rhiw-cymmer (NNR)	No known issues.	No
257	002587	Mesdow below Allt Penrhiw-iar (NNR)	No known issues.	No
258	002588	Ty Rhyd-y-groes	No known issues.	No
259	002589	Pasture at Allt Rhyd-y-groes	No known issues.	No
260	002590	Maes-y-meddygon fields	No known issues.	No
261	002591	Gallt-y-bere field	No known issues.	No
262	002593	Tan-y-foel fields	No known issues.	No
263	002594	Troed-rhiw-fer fields	No known issues.	No
264	002595	Rhos Nant-rhyd-Ifor	No known issues.	No
265	002596	Troed-rhiw-beynon fields	No known issues.	No
266	002597	Rhos Troed-rhiw-fer	No known issues.	No
267	002598	Troed-rhiw-bwlchau, SPA fields	No known issues.	No
268	002599	Troed-rhiw-bwlchau, non-SPA fields	No known issues.	No
269	002600	Troed-y-rhiw-gelynen, SPA fields	No known issues.	No
270	002601	Troed-y-rhiw-gelynen, non-SPA fields	No known issues.	No
271	002602	Troed-rhiw-hir, SPA fields	No known issues.	No
272	002603	Troed-rhiw-hir, non SPA fields	No known issues.	No

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
273	002604	Troed-rhiw-hir, enclosed hill land	No known issues.	No
274	002605	Tir Troed-y-rhiw-dinas	No known issues.	No
275	002606	Cefn Gwenddwr Plantation	No known issues.	No
276	002607	Troed-y-rhiw-dinas, west field	No known issues.	No
277	002608	Tir Llys Fedw	No known issues.	No
278	002609	Llys Fedw, rough grassland	No known issues.	No
279	002610	Llys Fedw, SPA land	No known issues.	No
280	002611	Bryn-arau-duon, SPA land	No known issues.	No
281	002612	Ty Capel land	No known issues.	No
282	002613	Tir Bwlch-y-rhiw	No known issues.	No
283	002614	Tir Fron-goch	No known issues.	No
284	002615	Tir Cwrt-y-cadno	No known issues.	No
286	002617	Troed-rhiw-rhuddwen, improved pasture	No SSSI, SAC or SPA features of interest?	No
287	002618	Troed-rhiw-rhuddwen, improved hill land	No SSSI, SAC or SPA features of interest?	No
288	002619	Rhyd-y-groes, improved pasture	No SSSI, SAC or SPA features of interest?	No
289	002620	Dinas field	No SSSI, SAC or SPA features of interest?	No
290	002621	Allt Llwyndiried pasture	No SSSI, SAC or SPA features of interest?	No
291	002622	Allt Llwyn-diried, plantation	No SSSI, SAC or SPA features of interest?	No
292	002623	Gelli-hernin, plantation	No SSSI, SAC or SPA features of interest?	No
294	002625	Troed-rhiw-rhuddwen Farm	No SSSI, SAC or SPA features of interest?	No

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
295	002626	Roads at Gwenffrwd, SAC/SPA	No SSSI, SAC or SPA features of interest?	No
296	002627	Roads at Gwenffrwd, SAC only	No SSSI, SAC or SPA features of interest?	No

7. GLOSSARY

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

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

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

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

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

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

Condition categories The **condition** of **feature** can be categorised, following **condition assessment** as one of the following[2]:

Favourable: maintained;

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

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

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

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

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

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

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

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

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

Favourable conservation status See **conservation status** and **conservation status assessment.**[3]

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

Integrity See **site integrity**

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

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

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

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

Operational limits The levels or values within which a **factor** is considered to be acceptable in terms of its influence on a **feature**. A factor may have both upper and lower 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.**

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

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

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Annexes:

ANNEX 1: VISION STATEMENTS FOR THE CONSTITUENT SSSIs

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

ELENYDD SSSI:

Much of the Elenydd plateau has a deep mantle of peat, supporting blanket bog vegetation. This habitat covers around 20% of the site in total. These bogs are particularly well developed in the Ceredigion/Powys bordered area. The drier areas are generally dominated by heather, hare'-tail cottongrass, bilberry, crowberry and cross-leaved heath, over a mixture of mosses, including some bog-moss. Cowberry and lichens are also prominent in places. On the slightly wetter ground, plants such as deergrass, bog asphodel, common cottongrass, purple moor-grass and bog-mosses are more prominent, whilst the wettest areas contain "lawns" of bog mosses, abundant common cotton-grass and plants such as bog rosemary, round-leaved sundew and cranberry. In places there are bog pools with plants like bottle sedge, mud sedge and bogbean. The scarce tall bog-sedge is found on Bryn yr Hyddodod and pools at Gors Llwyd support the locally rare slender sedge. Magellanic bog-moss may be found around the pool edges on Groes Bryn-llwyd. Round-fruited collar-moss is found on sheep dung, which decays slowly in the damp acidic, peaty conditions. There is also a thriving population of large heath butterflies in the bogs to the north of Claerwen Farm.

Gors Llwyd bog contains a sequence of layers of peat and associated deposits lying beneath the surface providing detailed evidence for vegetation and environmental changes in central Wales during the past 14,000 years, a time interval extending back almost to the end of the last Ice Age. A series of boreholes has revealed a sequence of lake deposits overlain by peat. Pollen recovered from the sediment cores reveal phases of climatic warming and cooling following the end of the Ice Age, as well as the subsequent rise and decline of various types of tree (e.g. oak, elm, hazel and pine) and the increasing influence of man in the form of forest clearance and grazing of domestic animals.

The peat profile at Gors Llwyd is largely undisturbed and maintained in a condition, which will enable researchers to re-examine the evidence, which was available to their predecessors and for teaching coming generations of students of this subject.

Around the blanket bog fringes and on damp acidic ground elsewhere, there are patches of wet heath, with heather, cross-leaved heath, bilberry, deergrass, purple moor-grass and bog-mosses.

Valley bogs have developed on the lower ground where deep peat has built up in fairly level, poorly drained areas. The vegetation is similar to that of the blanket bogs but often taller, with a higher percentage of purple moor-grass. There are also extensive areas of marshy grassland here, dominated by purple moor-grass and rushes. In places, this vegetation can be quite diverse with a variety of other plants, such as tormentil, cross-leaved heath, common cottongrass, common marsh-bedstraw, greater bird's-foot-trefoil, whorled caraway, heath spotted-orchid, lesser spearwort, marsh violet, ivy-leaved bellflower and a variety of bog-mosses.

Where water drains through the bogs and on valley side spring lines, there are numerous patches of flush vegetation. Most areas just contain rushes over bog-moss and a few sedges but the wettest areas may contain shorter vegetation with bog-moss carpets and plants like bog pondweed, bog St John's-wort, and bog asphodel. Carpets of white beak-sedge are found in some areas and flushes on the south side of Cwm Ystwyth and at Pont ar Elan contain god populations of the scarce bog orchid. Where the drainage water is less acidic there are flushes where "brown" mosses are more prominent, these are accompanied by plants such as bulbous rush, common butterwort, round-leaved sundew bog pimpernel and variety of small sedges. There are also small springs dominated by mosses or plants like round-leaved crowfoot or blinks.

The headwaters of the Ystwyth, Elan, Claerwen, Irfon, Gwesyn and Cammarch and numerous other streams are fast flowing over stony beds that support very little plant life, other than mosses, liverworts and plants like wilson's filmy fern, which grow in great luxuriance in some of the shaded stream gorges.

The Afon Elan just below Gors Llwyd is of national geomorphogical importance because it has provided critical information relating to the processes and effects of meander confinement. A total of six meanders are present at the site. Two are confined by a 4m high terrace, and here the river channel is smoothly curved and sedimentation is occurring at point and channel bars. In contrast, three other meanders are confined by bedrock and in these cases the river channel has created deep scour pools. The final meander is relatively unconfined and is associated with several abandoned channels testifying to river migration across the floodplain. It is also important for the contrast it provides with lowland meandering sections altered by human interference. The active stream channel here is maintained in its working condition, allowing natural fluvial processes, namely erosion, sediment transport and deposition, to continue. The channel is not constrained artificially and the terraces and former channel features are undisturbed and kept free of trees and shrubs.

Waders such as dunlin and golden plover breed in suitable blanket bog areas throughout the site, other wetland areas support breeding curlew and snipe and birds like common sandpiper, grey wagtail and dipper breed along the upland streams.

In general the important bog areas support a good variety of bog mosses and other peat-forming plants and purple moor-grass is not tussocky or overwhelmingly dominant. Peat erosion occurs as part of a natural cyclic process. The net area of bare peat is not increasing and also eroded areas become re-vegetated with bog plants in the longer term. There is sufficient suitable habitat to support the full range of plants and animals that are characteristic of the peatlands and other wetland areas and all factors that affect them are under control.

Elenydd contains several upland lakes with mildly acidic, nutrient-poor water. Water plants found here include shoreweed, water lobelia, alternate water milfoil, quillwort, spring quillwort, bulbous rush, floating bur-reed, broad-leaved pondweed, intermediate water-starwort and water moss.

Good populations of the rare floating water-plantain are found in Llyn Gynon and the two Cerrig Llwydion lakes. The rare stonewort Nitella gracillis, scarce six-stamened waterwort

and awlwort are also found in Llyn Gynon. Six-stamened waterwort is also found growing in shallow water on the stony bed of Dolymynach Reservoir. Populations of these water plants are all stable or increasing and the water quality of the lakes remains suitable for their survival in the long term.

A few pairs of teal breed around the margins of the more remote lakes, where their ducklings are less vulnerable to disturbance and predation.

The steeper hill slopes and drier hilltops often support areas of dry heathland. These are particularly extensive in Cwm Ystwyth and to the east of the Elan valley reservoirs, covering around 5% of the site in total. This heathland is generally dominated by heather and bilberry, with crowberry, cowberry and lichens all prominent in places. Grasses, such as sheep's fescue, mat grass and wavy hair-grass, can be frequent and there is generally a well-developed moss layer. Sunny south-facing slopes at lower altitudes support heathland that is more open in character and is dominated by mixtures of heather and bell heather, with lichens, or by dense patches of western gorse. This vegetation is often associated with rock screes. The locally rare lesser twayblade can be found beneath the tall heather canopy on the hilltops to the north of Cwm Ystwyth. The large patches of heather at Meolfryn Mawr and Y Gamriw and the drier bog areas on the Claerwen/Gwngu watershed support small population of breeding red grouse. One or two pairs of Merlin also breed amongst the heather but the majority use old crows nests in the conifer plantations that border the hill areas.

The heathland areas have a varied age structure with a mosaic of young heath, mature heath and degenerate heath. Trees, shrubs and bracken are not invading the larger heathland areas on the hilltops. Grasses may be present between the dwarf-shrub bushes or in open areas, but they do not make up more than a quarter of the sward in these areas.

The heathland is frequently associated with rock outcrops, cliffs and scree that provide nest sites for ravens and peregrines. At least 10 pairs of these magnificent falcons breed within the site each year. The rare rock whitebeam grows on cliffs at Caban Coch and Craig Cnwch and the locally rare hawkweed Hieracium subcrocatum grows on rocks above the Afon Ystwyth to the East of Ty Llwyd. The rare liverwort delicate flapwort is found on a ledge on a rock outcrop above the Nant Cletwr west of Craig Goch Reservoir. Shaded and sunny rock outcrops also provide a home for a wide variety of lichens, including many rare and scarce species. The Nature Reserve at Nant Irfon is good place to see many of these.

The drier ground throughout the site also supports acidic grassland, especially where the grazing pressure is high. This is generally dominated by a mixture of sheep's fescue, mat-grass, bents, with plants like heath bedstraw and tormentil and a layer of mosses. The thinnest driest soils have an open sward with sheep's sorrel and a variety of lichens.

The deeper, free draining soils on the valley sides support extensive areas of bracken, often intermingled with patches of heath and grassland with scattered trees and shrubs, such as rowan birch and hawthorn. These "ffridd" areas form a valuable habitat mixture for nesting and feeding birds, including whinchats, stonechats, wheatears, meadow pipits and skylarks. These birds are found in suitable areas throughout the site in sufficient numbers to form a reliable food source for merlins and other birds of prey.

There is sufficient suitable habitat to support the full range of plants and animals that are

characteristic of the heathlands, rocky areas, dry acidic grassland and ffridd and all factors that affect them are under control.

Broadleaved Woodland covers around 7% of the site. It mainly occupies the valley sides and is particularly extensive around the Elan Valley Reservoirs and in the Irfon and Ystwyth valleys.

The majority of this woodland is dominated by sessile oak, although downy birch and rowan are frequent where the woodland is more open. Ash is prominent on some of the less acidic rock outcrops, whilst alder, downy birch and rusty willow are found in the wetter areas. The canopy is quite open in places, which suits lichens and birds that favour "parkland" situations. Elsewhere, particularly in the stream gorges, a closed canopy maintains the shady, humid conditions required by other lichens and by many of the mosses and liverworts.

The oak woodland often has a very sparse shrub layer. The ground flora may be dominated by bracken, bilberry or grasses but the most interesting areas, comprising around half of the total woodland area, have a good variety of typical mosses and liverworts in the ground layer including "oceanic" and scarce species such as autumn flapwort.

These woodlands also support a wide variety of lichens growing on the tree trunks and branches, including rare species like Graphina pauciloculata, that grows on hazel trunks in a shaded ravine at Allt Dihanog, Cwm Ystwyth, Porina roseii, found in Gro Wood, Elan Valley, Arthonia ligniaria and Micarea subviridescens, found in woodland at Nant Irfon, and scarce species, such as Opegrapha fumosa, which is found on oak trunks in Gro Wood.

Red kites breed at a number of woodland locations but they are not confined to the broadleaved areas and range widely over the uplands in search of carrion and other prey. The Elenydd-Mallaen area forms the core of their native British breeding range and this continues to be the most important area in Wales for kites. Buzzards breed throughout the broadleaved woodland areas and goosanders nest in large tree holes close to water.

The woodlands contain the full range of structural elements, including many mature and veteran trees, providing excellent habitat for lichens, invertebrates and hole nesting birds, with sufficient saplings in to maintain the woodland cover in most areas in the long term. There is plenty of standing and fallen dead wood and invasive trees and shrubs, such as beech, sycamore and rhododendron, are rare.

Generally, there is sufficient suitable habitat to support the full range of woodland plants and animals that are characteristic of the area and all factors that affect them are under control.

There are several old metal mine sites within Elenydd. The main mining areas were in Cwm Ystwyth and at Nant Methan, Nant y Car and Rhiwnant valley in the east. All of these areas contain outcrops of metal rich rocks and large areas of partially vegetated mine spoil, extending to over 40 ha in total. Typically, these areas support a sparse sward of sheep's fescue, mosses, including the rare lead moss, and a rich variety of specialised lichens, including many rare and scarce species. Rock outcrops at Cwm Ystwyth mine support several thriving populations of the scarce fern forked spleenwort. Old mine shafts also provide roosting sites for several types of bat.

Cwm Ystwyth mine is of national importance for the study of mineralization in the Central Wales Orefield. The spoil tips at the mine contain abundant ore material, including galena, chalcopyrite and sphalerite, which enable the recognition of two main phases of mineralization. Additional interest is provided by the structural relationships and mineralogical variations displayed by the three main mineral veins, namely the Comet, Kingside and Mitchell's lodes. These veins are exposed both at surface and in the underground workings and indicate at least two separate phases of vein emplacement.

The old mine tips and buildings remain generally undisturbed and the shafts and underground workings are left open to allow access for scientific study and bats but fenced off to maintain public safety and deter unauthorised access.

Elenydd supports an exceptional variety of mosses and liverworts that are typical of the 'oceanic' areas of north western Britain, including uncommon species, that enjoy the cool but mild climate and high rainfall here. These plants are typically found amongst the bog vegetation, along the stream sides, on shady rock outcrops and in the woodland ground layer throughout the site. The diversity of species is maintained throughout these habitats and their populations are generally stable, or increasing. The factors that may affect these mosses and liverworts are all under control.

The parkland around the site of the former Hafod mansion contains some old pasture that supports an exceptional variety of grassland fungi, with more than thirty species of waxcap, including the scarce pink waxcap. Populations of these fungi are stable or increasing. The sward in these areas is fairly short throughout the year. Plants indicating disturbance and nutrient enrichment, such as thistles, docks, perennial ryegrass, ragwort and nettles, are not prominent in the sward. Scattered trees and shrubs and patches of bracken are present but these are not invading the open grassland.

The landforms in Cwm Ystwyth known in as Cwm Ddu and Cwm Tinwen are unique in upland Wales. Although these landforms resemble cirques that have been generated through glacial erosion, several studies have revealed that, whilst differing somewhat in overall structure, essentially they were formed by frost-shattered debris sliding down slope on the surface of perennial snow patches. Evidence collected from these landforms suggests that much of mid-Wales was ice-free during the last Ice Age. These areas are preserved as open landscape that is largely free of trees and scrub and man-made features.

The old quarry and cliffs at Caban Coch are important sites for geological study. This is the principal site illustrating the Caban Côch Conglomerate, which is a distinctive deposit formed in early Silurian times, at the source end of a submarine debris-flow fan in the mouth of a submarine canyon.

The rock exposures here are clearly visible and kept in a condition, which enables researchers to re-examine the evidence available to previous workers and as a teaching resource.

CWM DOETHIE – MYNYDD MALLAEN SSSI:

In the valleys that lead to the uplands of Cwm Doethie – Mynydd Mallaen, much of the valley slopes are clothed in oak woodland. The woodland itself is not continuous, and has occasional gaps in the canopy caused by dead or fallen trees. Trees vary in age, and where there are gaps in the tree canopy it is possible to see saplings growing to fill the space.

Most of the trees and shrubs are of locally native broadleaved species. Sessile or hybrid oak and downy birch make up the majority of the trees, but ash, rowan, holly and alder can all occasionally be found, though their abundance changes throughout the woodland. Beneath them are scattered shrubs such as hazel and hawthorn. Dead and dying trees, as well as live trees with holes, hollows and rotten branches, provide habitat for numerous mosses, fungi and specialist insects, as well as nesting sites for pied flycatchers, redstarts and other characteristic birds of Welsh oakwoods. On the oldest trees, rare lichens, which have escaped the effects of air pollution, can be found.

On the woodland floor, in rocky areas or where the soil is particularly thin and acidic luxuriant carpets of mosses and liverworts can be found. Growing amongst them are plants such as heather, bilberry, wavy hair-grass, wood sorrel and a variety of ferns.

Species-rich grassland can be found in some of the enclosed land on the lower slopes of Cwm Doethie – Mynydd Mallaen. Fields shut up for hay are an attractive mix of different flowers typical of this kind of grassland, with species such as black knapweed, bird's foot trefoil and great burnet, together with ivy-leaved bellflower. Grazed land with species-rich neutral grassland may not look as colourful as the hayfields at first sight, because flowering heads are often grazed off by stock. However, the sward, which varies in height from about five centimetres up to tussocks of 15cm, still contains most of the species present in the hayfields. The abundance of flowers in the hayfields and grazed land contrasts sharply with the monotone green of the surrounding agriculturally improved fields

Uphill from the woodlands and enclosed land are steep crags and cliffs with a number of specialist plants, such as marjoram and wall lettuce. These plants find refuge from grazing animals on the cliffs. However, it is possible to find them spreading onto more accessible land, as grazing pressure on the crags declines.

The plateau of Cwm Doethie – Mynydd Mallaen is covered in blanket bog and dry heath, together with associated habitats such as springs, patches of wet heath and marshy grassland. In places, dry heath or blanket bog can form vast tracts, but in others the different habitats are in an intimate mix, so that it is possible to walk from dry heath into blanket bog and back onto heath within a few dozen yards.

The dry heath is found on the thinner freer draining soils and consists mostly of heather, bilberry and crowberry, with occasional western gorse. These shrubs are the dominant plants on the heath, together forming at least three quarters of the ground cover. The height of vegetation varies across the site, from little more than ankle height to large tussocks of heather that are exhausting to walk through. Although farm animals may graze the heath, there are no signs of overgrazing, such as extensive areas of acid grassland, disturbed, poached ground or 'drumstick' heather growth forms.

In contrast to the dry heath, the blanket bog forms on a deep layer of waterlogged peat, often several metres thick and made up of the partly decomposed remains of previous bog plants. The surface of the bog consists of a mixture of small, moss-filled waterlogged hollows and slightly drier hummocks where heathers grow. You may also see an occasional small bog-pool. The tallest plants, standing at about knee-height, are cross-leaved heath, which grows in the wetter areas, common heather and cotton grass. Growing among these are bilberry, crowberry, cranberry, deer grass and purple moor-grass.

Below the taller plants you can see sphagnum bog mosses. These spongy, water-holding mosses form a hummocky and colourful carpet in a variety of greens and reds. You may also see insect-eating sundews and the yellow bog asphodel on some of the drier hummocks.

Over the blanket bog and heath, it should be possible to see some of the upland birds that inhabit these wild remote areas. In good weather, birds of prey such as red kites and buzzards can be seen soaring over the valleys whilst peregrines nest on nearby cliffs. The tiny merlin darts across the moor in search of small birds, its main prey. In spring, ring ouzels, a close relative of the blackbird, arrive from their African wintering grounds to nest on the steeper slopes, whilst the calls of curlew, red grouse and golden plover can be heard across the moorland plateau.

MARCHEINI UPLANDS, GILFACH FARM & GAMALLT SSSI:

Some parts of the upland plateau are poorly drained and are covered by peat that supports blanket bog vegetation. This habitat covers around 10% of the site in total. The drier areas of bog are dominated by heather, with frequent hare's-tail cotton grass, bilberry and some crowberry. In the wetter areas, bog moss carpets are prominent, along with plants like deergrass, cross-leaved heath, common cotton grass, bog asphodel and the locally uncommon bog rosemary. Grasses become more common as the peat thins out around the edges of the bogs and the vegetation here resembles that found on wet heathland. There are also patches of valley bog associated with the headwaters of the Marcheini Fawr stream. These areas are mainly dominated by bottle sedge or rushes, over common cotton grass and bog mosses. These bogs provide breeding and feeding areas for snipe, curlew and migrating golden plover.

Although hare's-tail cotton grass, purple moor-grass and tall rushes may be locally abundant in these boggy areas, their growth is not so thick as to smother the growth of other plants and there is no build up of dead vegetation from year to year. Permanent areas of bare eroding peat are generally absent.

The drier hilltops, slopes and crags support extensive areas of heathland. This habitat occupies almost half of the site in total. Heather is dominant in most areas, with moss carpets beneath, but bilberry, crowberry and grasses are common in places and bell heather, western gorse and lichens are prominent on the sunny south-facing slopes of Garreg Llwyd, Yr Wylorn and Gamallt. On some of the shady north-facing slopes bog moss, liverworts and ferns are quite common under a canopy of bilberry or heather. Birds such as red grouse breed in the open heather moorland and gorse provides nest sites for others, such as stonechat and linnet.

The heathland areas have a varied age structure with a mosaic of young heath, mature heath and degenerate heath. Heather and bilberry do not exhibit growth forms indicating grazing damage. Grasses may be present between the dwarf-shrub bushes or on open areas, but they do not make up more than a quarter of the sward in these areas. In some areas on the lower slopes the heathland is mixed with patches of bracken, which favours pockets of deeper soil. These areas have scattered trees and bushes and provide valuable habitat for birds such as whinchat and tree pipit. However, scrub is scarce in the open moorland areas and bracken covers no more than around 20% of the site in total and is not encroaching onto the hilltops.

Cliffs, rock outcrops and scree occur all around the edges of the site, providing nest sites for birds such as wheatear and raven. Those on Yr Wylorn provide important habitat for plants like the locally rare parsley fern and an exceptional variety of rare and scarce lichens, including Protoparmelia atriseda, which has only been recorded from a handful of other sites in Britain. More rare and scarce lichens are found on the thin, parched soils, which are found around the rocks on these south-facing slopes.

There are large blocks of oak woodland clothing the slopes at Allt-goch and to the east of Gilfach farmhouse. More varied mixed woodland is found alongside the Afon Marteg. Together, these cover around 5% of the site. The oak woodland has a sparse understorey of downy birch, hazel and rowan. The ground flora is generally fairly grassy, although bracken, bilberry and moss carpets are all prominent in places. Other common plants found here include bluebell, wood sorrel and ferns. The woodland along the Marteg valley is dominated by mixtures of ash, oak, alder and downy birch, with a well developed understorey, including hazel, downy birch and rusty willow. A great variety of plants are found beneath including meadowsweet, remote sedge, marsh marigold, smooth-stalked sedge, purple moor-grass and a great variety of mosses and liverworts, including some uncommon species.

The tree trunks and branches are clothed by a luxuriant growth of lichens, indicating clean air and a continuity of woodland cover. There are several rare and scarce British species among their number. The woodlands support an exceptional variety of breeding birds, including buzzard, sparrowhawk, tawny owl, greater and lesser-spotted woodpecker, wood warbler, spotted and pied flycatcher, nuthatch and redstart. There are a variety of different structural elements that provide habitat for these species, including open woodland, dense scrub and ground cover and tree holes for nesting.

A closed canopy is maintained throughout most of the woodland, particularly in areas supporting mosses, liverworts and lichens that are dependent on shade and high humidity. However, the canopy is much more open in some areas, where small clumps and individual trees are interspersed with glades containing bracken and acid grassland. The woodland has a diverse structure with trees of all age classes, including mature and over-mature trees. Natural regeneration of native trees is sufficient to maintain the woodland cover in the long term. Mature conifers, beech and sycamore are found in places but saplings and young trees of these species are rare. Standing and fallen dead wood is common and provides an important habitat for mosses, liverworts, lichens, fungi, birds and insects.

Many of the small fields on Gilfach Farm have escaped agricultural improvement. On the dry acidic soils the sward is dominated by common bent, sheep's-fescue and sweet vernal grass. There are a wide variety of herbs in these areas, including tormentil, heath bedstraw,

harebell, bitter-vetch, common bird's-foot-trefoil, betony, heath speedwell, pignut, yellow mountain pansy and locally uncommon plants, such as moonwort, scarce eyebrights and hawkweeds and heath dog-violet. Where the soils are slightly deeper, plants such as crested dog's-tail, common knapweed and devil's-bit scabious are prominent. The slightly less acidic dry soils support patches of bent and fescue grassland with plants like common dog-violet, wild thyme, mouse-ear hawkweed and fairy flax. Together, these flower rich pastures occupy at least 2% of the site. These grasslands also support a rich variety of fungi, particularly fairy clubs and many waxcaps, including the scarce pink waxcap.

Plants indicating disturbance and nutrient enrichment, such as thistles, docks, nettles, Yorkshire fog, lesser trefoil and white clover and species indicating under-grazing and succession to scrub, such as cock's-foot, bracken and young hawthorn, are not prominent in the sward within the unimproved grassland areas. Bare ground covers less than 15% of the ground in these unimproved grassland areas at any time.

Generally, for each habitat of particular interest, the area is stable, or increasing, its quality is maintained, typical plants animals are thriving and the factors that may affect the habitat are under control. The diversity of plants, including mosses, liverworts, lichens and grassland fungi, is maintained. Populations of rare and scarce plants, otters, salmon, bullhead, brook lamprey and typical breeding birds are all stable or increasing and are sustainable in the long term, their range is not contracting, sufficient habitat exists to support them and the factors that may affect them or their habitat are under control.

CARN GAFALLT SSSI:

The majority of the higher land is covered by dry heath dominated by heather and bilberry, along with crowberry, cowberry, mosses and lichens and some bell heather and western gorse on south-facing slopes. In total, dry heath covers around 40% of the site.

The heathland has a varied age structure created by a system of small patch burning or cutting and grazing, such that there is a mosaic of recently burnt/cut heath, young heath, mature heath and degenerate heath. Dense patches of bracken are generally absent from these areas.

Damper hollows on the hilltop support bog, wet heath and rush dominated vegetation.

Large areas of the hillsides are clothed in mature woodland, dominated by sessile oak. Around the edges of the common, this becomes scrubby and forms a natural transition to heathland and "ffridd" vegetation, comprising hawthorn, rowan and birch trees mixed with bracken, gorse scrub and bent and fescue grassland. There is an area of more open "park woodland" in Cwm yr Esgob, where ancient oak trees are interspersed with heathy grassland, scrub and bracken. There are also small patches of ash woodland on the richer soils and wet woodland in the valley bottom. Together these woodlands occupy just over a quarter of the site.

The hillside oak woods generally have a scattering of birch and rowan in the canopy and a sparse shrub layer of hazel and hawthorn. The thinner acid soils support a ground flora that

is dominated by bilberry and heather, with grasses, such as wavy hair-grass, sweet vernal grass and common bent. Mosses and liverworts are common in places and form extensive carpets in the more humid areas and around the boulder screes. Many of these are typical of western British oak woods and there are several types that are scarce, such as bright silk-moss and cut notchwort, or threatened in Europe, such as Holt's mouse-tail moss and Hutchins' hollywort.

On the deeper acid soils, bracken is common and other woodland plants, like wood-sorrel, bramble, foxglove and ferns can be found. The richest soils are found beneath an ash canopy. They support plants like dog's mercury, enchanter's-nightshade, herb-robert and a luxuriant growth of ferns. The wet woodland has a canopy of alder and downy birch, with some ash. The ground flora here includes plants such as meadowsweet, yellow pimpernel, opposite-leaved golden-saxifrage, tufted hair-grass and rushes, with bog-mosses in the more acidic areas.

There are a wide variety of lichens growing on the trunks and branches of the trees and on rock outcrops and boulders within the woodland. The older trees growing in sheltered situations are particularly good in this respect, supporting several scarce species and good populations of several that are threatened in Europe, including Lobaria virens, Sticta limbata and Sticta sylvatica.

Old and over-mature trees with dead and dying limbs and trunks are scattered throughout the site together with fallen dead wood. There are many important veteran trees in Cwm yr Esgob. These provide valuable habitat, such as decaying wood, rot pools and broken branches, for a range of specialised invertebrates that are typical of ancient "park woodland". There are a number of rare and scarce invertebrates in this area, including the longhorn beetle Pyrrhidium sanguineum, whose larvae live in fallen oak branches, the cardinal beetle Schizotus pectinicornis, the bark beetle Xyloterus signatum, the ground beetle Calosoma inquisitor, the soldier fly Xylophagus ater, whose larvae live in rotting wood, and the ash-black slug, a good indicator of ancient woodland. The open glades between the trees here contain many flowering plants, such as hawthorn and heather, which provide nectar for the adult insects.

Generally, plants indicating disturbance and nutrient enrichment, such as large patches of nettles and cleavers, are not common and there are no extensive areas of bare ground within the woodland. Non-native trees and shrubs, such as sycamore and rhododendron are rare but some areas have a few mature conifers, such as larch and scots pine.

A great variety of birds breed in the woodland areas, including tree nesters, such as buzzard, jay, goldcrest and hawfinch; hole nesters, such as stock dove, pied flycatcher, redstart, nuthatch, tits and three types of woodpecker; scrub nesters, such as garden warbler, blackcap and bullfinch; and ground nesters, such as wood warbler and tree pipit.

Birds of prey, such as red kite, peregrine and merlin, are often seen feeding over the heathland and ffridd areas.

Generally, for each plant or animal of particular interest, the population is stable, or increasing and is sustainable in the long term, the range is not contracting, sufficient habitat exists to support the species and the factors that may affect the species or its habitat are under control.

LLYNOEDD IEUAN SSSI:

At least 85% of the site is blanket bog and heath dominated by heather, giving a swathe of purple flowers in August. The heather is naturally 'layering' in the wet climate and the stems grow horizontally along the wet peaty soils and the bushes rarely grow more than half a metre tall. Amongst the heather there is crowberry, bilberry and a thick cover of mosses. Wetter areas have hare's-tail cotton-grass, purple moor-grass and deer grass with bog mosses, common cotton-grass and bog asphodel in wet runnels and peaty pools. In the south-western part of the site, on the colder north-western facing slopes, Cowberry is particularly abundant.

Although purple moor-grass is common on the un-grazed part of the SSSI where past heavy grazing may have favoured its growth, it never has more than 25% cover and is becoming less abundant over time.

The water in all three lakes is clear and visibility is good. The lakes contain extensive beds of water lobelia, quillwort and shoreweed where suitable substrates occur. Very little alga is visible.

A few scattered rowan and hawthorn trees grow on leeward slopes and in sheltered areas. There are no mature conifers present on the SSSI and young self-seeded conifers are very rare.

CWM GWYNLLYN SSSI:

Around 40% of the site is wooded. Much of the woodland at Y Wenallt, on the steep south-westerly facing slopes of Esgair Derw, has a closed canopy that consists almost entirely of mature sessile oak trees, whose bark supports a variety of typical lichens, although downy birch and rowan are found where the woodland is more open. The shrub layer here is sparse and rocky ground beneath supports a variety of typical plants, such as bilberry, bracken and grasses, with extensive carpets of mosses and liverworts in places. A roadside cave here contains a colony of the unusual luminous moss. There are open glades in places and the trees thin out around the rock outcrops and screes along the top of the wood and at the western end. Here, the sunny slopes support patches of open grassland, with sheep's fescue, sheep's sorrel and lichens, and heathy areas, with bilberry, bell heather and western gorse. These open rocky areas provide ideal habitat for the locally rare grayling butterfly and uncommon lichens, such as Trapeliopsis walrothii. By contrast, the north-east facing slopes of Craig Ddu support more open "ffrydd" habitat, with patches of oak trees in amongst a mosaic of bracken and acidic grassland. Shaded rocks here and along the Nant Gwynllyn support a variety of lichens, liverworts and mosses, including the scarce greater streak-moss and river thread-moss.

The main woodland areas have a varied structure, with trees of all ages, including some ancient specimens, and plenty of standing and fallen deadwood. Natural regeneration of native trees and shrubs is sufficient to maintain the woodland cover in the long term. Non-native trees and shrubs are absent and there is minimal soil erosion caused by grazing stock. Natural regeneration of native trees and shrubs is sufficient to maintain the woodland cover

in the long term.

The woodland supports the full range of breeding birds that are typical of the area, such as buzzard, pied flycatcher, redstart and wood warbler. There are a variety of different structural elements that provide habitat for these species, including open woodland, ground cover in places and tree holes for nesting.

Gwynllyn Lake occupies a central position in the valley bottom. It supports a limited variety of water plants that are typically found in peaty upland lakes with mildly acidic water, such as alternate water milfoil, shoreweed, intermediate water-starwort and yellow water lily. Marginal plants, such as bottle-sedge, common reed, water horsetail and bogbean, form a narrow band around the waters edge. The level of the lake does not fluctuate much as it is unusual if more than 10% of the lakebed is ever exposed during the dry summer months. Generally the lake water is peaty but fairly clear. Plants indicating nutrient enrichment, such as blanket weed (green algae) are rare and non-native plants, such as Canadian waterweed, are absent.

At the northern end there are patches of quaking bog next to the lake with bottle sedge and abundant bog mosses. Further from the lake, this grades into vegetation dominated by sharp-flowered rush, bog mosses and sedges and rush dominated marshy grassland beyond that. There are areas of purple moor-grass vegetation here, patches of wet heath, with plants such as deer grass, cross-leaved heath, common cotton grass, cranberry, sedges and bog-moss, and runnels containing bog pondweed, marsh St John's-wort and bog moss. There are further areas of rushy pasture around the eastern lake margins, along the inlet and outlet streams and in the field at the southern tip of the site. Patches of rusty willow woodland are also found along the inlet and outlet streams but these are not encroaching onto the open wetland areas. Rushes and purple moor-grass are generally not overwhelmingly dominant and there is no build-up of dead vegetation from year to year. Plants indicating disturbance and nutrient enrichment, such as Yorkshire fog, floating sweet-grass, rough-meadow grass, marsh thistle, creeping buttercup nettles and cleavers are not prominent in these areas.

The lake and wetland areas support a good variety of dragonflies, damselflies and other insects, including rare and scarce flies and uncommon wetland beetles and bugs. Wetland breeding birds include coot, reed bunting, sedge warbler and snipe.

COEDYDD GLANNAU A CWM COEL SSSI:

Broadleaved semi-natural woodland covers around 90% of the site. Mature sessile oak dominate the canopy over at least 90% of the woodland but ash is also prominent in the canopy in the areas around the cliffs above the Garreg-ddu Reservoir. The wettest ground supports woodland dominated by alder and birch. A closed canopy is maintained throughout most of the woodland, particularly in areas supporting moss carpets and lichens that are dependent on shade and high humidity. However, the canopy is much more open in some areas, where small clumps and individual trees are interspersed with glades containing bracken and acid grassland. The woodland has a diverse structure with trees of all age classes, including mature and over-mature trees. Natural regeneration of native trees, such

as oak, ash, alder, birch and rowan, occurs and this regeneration is sufficient to maintain the woodland cover in the long term. Conifers are not prominent in the canopy. Mature beech and sycamores are found in a few places, particularly close to the site of Cwm Elan House, where they provide essential shade and support important lichens but saplings and young trees of these species are rare.

The understorey and shrub layer (where present) includes hazel, birch, rowan, holly, wych elm and hawthorn, and may spread and develop over time. Rhododendron and other invasive non-native shrubs are rare. The ground flora consists of locally native plants that are typical of these particular types of woodland in the Elan Valley. Large areas of the oak woodland have carpets of mosses and liverworts but bilberry, heather, bracken and grasses are prominent elsewhere, with other plants such as wood sorrel, bluebell and a variety of ferns. In the ash woodland the ground flora is more varied, with plants such as dog's mercury, bluebell, herb-robert, enchanter's nightshade and meadowsweet. The wet woodland in Cwm Coel has a ground flora that is dominated by bog mosses and a variety of other wetland plants including marsh violet and the locally rare royal fern.

The site supports the full range of breeding birds that are typical of woods in the Elan Valley, such as buzzard, pied flycatcher, redstart and wood warbler. There are a variety of different structural elements that provide habitat for these species, including open woodland, dense scrub and ground cover and tree holes for nesting.

The site supports a wide variety of mosses and liverworts that are typical of humid, shaded situations, including the scarce haller's apple-moss on rocks and the liverworts heller's notchwort, waxy earwort, and horned flapwort on oak trunks, as well as more widespread western species, such as the liverworts greater whipwort, notched pouchwort, western earwort and five-ranked bog-moss on the ground. Damp rocks, especially in the stream gorge at Cwm Coel, support a specialised flora with the locally rare wilson's filmy-fern and other plants, such as bristly swan-neck moss, wry-leaved tamarisk-moss, flagellate feather-moss, western pouncewort, prickly featherwort and straggling pouchwort. Damp decaying logs also support distinctive mosses and liverworts, such as beaked bow-moss, wood-rust and palmate germanderwort.

The site also supports a wide variety of lichens, including those that are typical of acid bark, such as Hypogymnia physodes, Hypotrachyna laevigata, Micarea cinerea, Mycoblastus sanguinarius, Ochrolechecia tartarea and Sphaerophorus globosus, those typical of old trees with less acidic bark, such as Anisomeridium ranunculospora, Arthonia vinosa, Bacidea biatorina, Biatora sphaeroides, Dimerella lutea, Lecidea sanguineoatra, Parmieliella triptophylla, Phyllopsora rosei and Thelotrema lepandinum, and those occurring on rock overhangs, such as the nationally rare Lecanactis latebrarum and Leparia cacuminum and the scarce Tylothallia biformigera.

Generally, there is sufficient suitable habitat to support the full range of mosses, liverworts and lichens in the long term and all factors that affect them are under control. This includes factors acting indirectly on the site, such as atmospheric pollution. The key factors within the site are the maintenance of a closed woodland canopy and humid conditions in Cwm Coel, with sufficient ancient trees elsewhere (with both acid and neutral bark), standing dead wood, dry and wet rocks and damp fallen logs.

COED YR ALLT-GOCH SSSI:

Around 85% of the site is covered by woodland. Mature sessile oak dominates the canopy in over 95% of the woodland but ash is also prominent in the canopy in the remaining areas. A closed canopy is maintained throughout most of the woodland, particularly in areas supporting moss carpets and lichens that are dependent on shade and high humidity. However, there some open glades, containing bracken and acid grassland where trees and shrubs have an opportunity to regenerate. The woodland is developing a diverse structure with trees of all age classes, including mature and over-mature trees. Natural regeneration of native trees, such as oak, ash, birch and rowan, occurs and this regeneration is sufficient to maintain the woodland cover in the long term. The shrub layer (where present) includes hazel and hawthorn, and may spread and develop over time. Non-native trees and shrubs are rare within the canopy and understorey.

The oak woodland ground flora consists of locally native plants that are typical of the western uplands of Wales, including bilberry, sweet vernal grass, common bent, wavy hair-grass and some bracken. There are well developed moss and liverwort carpets on the ground throughout, with species such as little shaggy-moss, bank haircap, greater fork-moss, glittering wood-moss, red-stemmed feather-moss, waved silk-moss, slender mouse-tail moss, white earwort and heath plait-moss, and abundant lichens in places. In the ash woodland, the ground flora is more varied, with plants such as dog's mercury, bluebell, wood sorrel, enchanter's nightshade, common dog violet and herb-robert, with wood sage and navelwort on the rock outcrops.

The trees support a variety of lichens typical of old forest including the scarce Pyrenula occidentalis on hazel. Rotting logs support species such as the rare Ptychographa xylographoides and shaded rocks also support a variety of typical species, such as the scarce Ramalina pollinaria.

The woodland supports a range of breeding birds that are typical of woods in the Elan Valley, such as buzzard, pied flycatcher, redstart and wood warbler. It is important to provide a range of different structural elements as habitat for these species, including open woodland, dense scrub and ground cover and tree holes for nesting.

Standing and fallen dead wood is retained as an important habitat for mosses, liverworts, lichens, birds and insects.

Some permanent areas of grassland, dominated by common bent, sweet vernal-grass and sheep's fescue, are found on the thin soils associated with the cliff tops, rock scree and old railway line. Grassland on the more acid soils supports plants such as sheep's sorrel, sheep's-bit, heather and western gorse, whilst the more lime-rich railway ballast support plants such as wild thyme, harebell and common bird's-foot-trefoil.

CERRIG GWALCH SSSI:

Around 40% of the site is covered by woodland. Sessile oak is the dominant tree in most areas but ash is prominent in places. The canopy is fairly open throughout, given the steep

and rocky nature of the site. The cliff faces and unstable rock scree are unable to support any large trees, which are confined to the gullies, larger ledges and less steeply sloping ground. The woodland has a diverse structure with mature and over-mature trees and natural regeneration of native trees, such as oak, ash, birch and rowan, and this regeneration is sufficient to maintain the woodland cover in the long term. The shrub layer (where present) consists of locally native species, such as hazel, hawthorn, wych elm and bird cherry.

The oak woodland ground flora is dominated by bilberry, with frequent heather, wavy hair-grass, a variety of ferns and moss and liverwort carpets, with little shaggy-moss, bank haircap, greater fork-moss, red-stemmed feather-moss, waved silk-moss, slender mouse-tail moss, white earwort and cypress-leaved plait-moss. The steeper rocks and ledges within the oak woodland support great woodrush, beech fern, honeysuckle, goldenrod, common polypody, navelwort, climbing corydalis, mountain male-fern, the scarce haller's apple-moss and lichens Chrysothrix chlorina and Lecanora subcarnea, and a thriving population of lily-of-the-valley. The rocks, ledges and damper soils in areas supporting ash woodland have plants that are typical of more fertile conditions, including dog's mercury, common dog-violet, meadowsweet, water avens, devil's-bit scabious, raspberry, the locally rare stone bramble, slender St John's-wort, primrose, common valerian, scaly male-fern, wood sage, wild angelica, orpine, rock stonecrop, the locally rare lichen Peltigera leucoplebia, and a thriving population of mountain melick. A shady gully in the cliff- face supports tall vegetation that is dominated by lemon-scented fern. Some dead wood is present and this provides an important habitat for the woodland flora and fauna.

A mosaic of dry heath, dominated by heather and bilberry, acid grassland, dominated by sheep's fescue, bents and wavy hair-grass and some small stand of bracken, is found on the cliff tops and slopes below the site. Extensive areas of rocky scree below the cliffs support crust forming lichens, mosses and a scattering of fine-leaved grasses, with a few distinctive plants, such as the locally rare parsley fern. The site supports a variety of breeding birds typical of wooded cliffs and rocky "ffridd" habitats.

CABAN LAKESIDE WOODLANDS SSSI:

The site supports a range of mosses and liverworts typical of humid, shaded situations with decaying wet wood, including beaked bow-moss, wry-leaved tamarisk moss, greater whipwort, whiskered veilwort, wood-rust, matchstick flapwort, prickly featherwort, straggling pouchwort and western earwort.

It also supports a range of lichens that are typical of acid bark, such as Buellia pulverea, Loxospora elatina, Hypotrachyna laevigata, Mycoblastus sanguinarius, Ochrolechecia tartarea, Sphaerophorus globosus and Trapelia corticola, those typical of more naturally basic bark of veteran trees, either on trunks or dry crevices such as Arthonia vinosa, Calicium lenticulare, Catillaria globulosa, Cresponea premnea, Lecidea doliiformis and Phyllopsora rosei and those occurring on standing dead wood, such as Chaenotheca trichialis and Lecidea hypopta.

The site provides suitable conditions for the survival of the rare lichens Catillaria globosa

and Ptychographa xylographa, the former occurring on ancient oak trees and the latter on moist wood of large fallen logs.

Generally, there is sufficient suitable habitat to support the full range of bryophytes and lichens that are characteristic of wet western woodland in the long term and all factors that affect them are under control. The key factors are the maintenance of a closed woodland canopy and humid conditions in the Nant Gwyllt gorge, with sufficient ancient trees elsewhere (with both acid and neutral bark), standing dead wood and damp fallen logs. No rare or scarce species have lost the ability to sustain or reproduce themselves through factors that are within human control. This includes factors acting indirectly on the site, such as atmospheric pollution.

MWYNGLODDFA CWMYSTWYTH SSSI:

The numerous abandoned mine workings, rock outcrops and spoil tips at Mwyngloddfa Cwmystwyth are of national importance because they provide important information relating to the development of mineralization in the Central Wales Orefield. These rock outcrops, both at the surface and in the underground workings, and mineralized material within the spoil tips clearly show that the lead-, zinc- and copper-bearing veins were formed during two main phases. A long-term vision for this site will be focussed on maintaining access to the underground workings, preserving current levels of rock exposure at the surface, and maintaining the spoil tips in their present state. This will ensure that Mwyngloddfa Cwmystwyth will continue to provide one of the best localities for the study of mineralization in the Central Wales Orefield.

The extent of the mine spoil tips at Mwyngloddfa Cwmystwyth are not decreasing in height or area except as a result of the natural process of weathering and erosion. All of the rare lichen species recorded at this site, that are characteristic of soils or rocks with a high metal content, are present with their populations either stable or increasing. The open sward of lichen-rich grassland includes characteristic grass species such as common bent, sheep's fescue, silvery and early hair-grass. Yorkshire fog is only occasional within the sward and perennial rye-grass is absent.

Access for hibernating bats in the system of underground workings is maintained. All four species previously recorded from the site, namely Daubenton's, Natterer's, Brown long-eared and Whiskered bats are present during the winter months.

CAEAU CNWCH A TY'N-Y-GRAIG SSSI:

Around 60% of the site supports unimproved neutral grassland. This is composed of the grasses; crested dog's-tail, sweet vernal-grass, red fescue and common bent, and also contains many wild flowers such as great burnet, ribwort plantain, common knapweed, eyebright, yellow rattle, and rough hawkbit. Of particular interest here are good populations of wood bitter-vetch and greater butterfly-orchid, which have both declined

significantly in Britain as a whole. Plants indicating disturbance and nutrient enrichment, such as white clover, thistles, docks and perennial ryegrass, and others indicating under-grazing, such as cock's-foot, bracken and gorse, are uncommon in the grassland sward.

The wetter parts of the site support areas of marshy grassland dominated by purple moor grass, and mire dominated by small sedges and bog moss.

An un-mown margin in Cnwch meadow has a population of the locally uncommon globeflower and the wet ground in the lower Ty'n-y-graig meadow supports rare liverworts. Plants indicating disturbance and nutrient enrichment, such as soft-rush, creeping buttercup and marsh thistle are not prominent in the marshy grassland and mire areas. Tussocks of purple moor-grass are confined to the un-mown areas and willow scrub is rare in the open wetland areas.

Dense scrub and woodland cover no more than 10% of the site. Small patches of bracken are present around the margins but these are not expanding into the grassland areas.

CAEAU TROED-RHIW-DRAIN SSSI:

In June and early July the meadows are a blaze of colour. The extraordinary variety of flowering plants form the greater part of the grassland sward.

Around 40% of the site consists of traditionally managed hay meadow, mainly the flatter parts of the fields. The main grasses here are sweet vernal grass, common bent, crested dog's-tail, and red fescue, and also present are a variety of wild flowers including eyebright, common knapweed, common bird's-foot trefoil, pignut, yellow-rattle, bluebell and great burnet. Steeper banks around the edges of the fields support, in places, a type of grassland that is characteristic of thinner, more acidic soils. Many of the hay meadow plants are also found in these areas but others, such as tormentil, devil's-bit scabious, betony and heath-spotted orchid, wood bitter-vetch, fragrant orchid and greater butterfly-orchid are particularly prominent in these areas. The most acidic soils support a sward that is dominated by sheep's fescue, common bent and sweet vernal grass. Many of the meadow plants still occur in these areas, but others join them, such as heath bedstraw, bitter-vetch and mountain pansy.

Damper soils within the site support marshy grassland, which is mainly dominated by purple moor grass, but also includes small patches of rush pasture. Flowers of the marshy grassland include tormentil, devil's-bit scabious, heather, lousewort, and saw-wort. There is frequent meadowsweet together with meadow thistle and the locally uncommon globeflower at the bottom of one field. Wet heath is present on more acidic soils, where deergrass, cross-leaved heath and heather are found growing with a range of mosses. Grading into this are acidic flushes containing bog-mosses and bog asphodel along with several types of small sedge.

Plants indicative of disturbance or nutrient enrichment, such as white clover, thistles, docks and perennial ryegrass should not be prominent in the sward. Bracken is confined to the scrubby margins of the site and is sparse in the open grassland areas.

GWEUNYDD TY'N-Y-LLIDIART SSSI:

Approximately half of the site is marshy grassland or wet heath. The former is dominated by purple moor-grass and sharp-flowered rush, supporting a range of typical plants, such as tormentil, sweet vernal grass, common marsh-bedstraw and greater bird's-foot-trefoil. Around 60% of the marshy grassland is species-rich, or heathy, supporting plants such as wild angelica, common marsh-bedstraw, greater bird's-foot-trefoil, marsh violet, heath spotted-orchid, star sedge, bog asphodel and common cottongrass. Purple moor-grass and soft rush are not completely dominant anywhere within the marshy grassland and there is no significant accumulation of dead vegetation from year to year. In the centre of the marshy grassland areas there are some patches of wet heath, occupying around 10% of the site in total. Purple moor-grass is still abundant in these areas, along with a range of typical heath plants, including tormentil, cross-leaved heath, deer grass, bog asphodel, round-leaved sundew, small sedges and carpets of bog-moss.

Plants indicating disturbance and nutrient enrichment, such as thistles, nettles, docks, creeping buttercup and soft rush, are not prominent in the marshy grassland or wet heath areas.

Small springs within the marshy grassland support bog vegetation, with a range of plants typical of acid conditions, such as soft rush, star sedge and bog mosses.

Drier banks support some areas of unimproved grassland dominated by bents, fescues, crested dog's-tail and sweet vernal-grass, with a variety of other plants, including tormentil, common bird's-foot-trefoil, common knapweed, red clover, eyebright, fairy flax, autumn hawkbit, heath grass, devil's-bit scabious, betony and spring sedge. Rye grass, white clover and other agriculturally favoured species are rare. This species-rich grassland covers at least 5% of the site.

Areas of wet woodland and scrub are present throughout the site, providing additional interest, but young willow, alder and birch trees are uncommon in the grassland and heathland areas, and woodland and scrub occupy no more than 10% of the site. Bracken covers no more than 10% of the site and is not encroaching onto the more interesting dry grassland areas.

RHOS YR HAFOD SSSI:

In June and early July the meadows are a blaze of colour. The extraordinary variety of flowering plants form the greater part of the grassland sward.
Around 40% of the site consists of traditionally managed hay meadow, mainly the less steep parts of the fields. The main grasses here are sweet vernal grass, common bent, crested dog's-tail, and red fescue, and also present are a large variety of wild flowers including common knapweed, common bird's-foot trefoil, pignut, bulbous buttercup, yellow-rattle, eyebright, bluebell and great burnet. The rocky outcrops within the hay meadows and steeper banks elsewhere support a type of grassland that is characteristic of thinner, more acidic soils. Many of the hay meadow plants are also found in these areas but others, such as tormentil, devil's-bit, scabious, betony and heath-spotted, fragrant and butterfly orchids

are particularly prominent in these areas. This type of grassland covers around 10% of the site in total. The most acidic soils support a sward that is dominated by sheep's fescue, common bent and sweet vernal grass. Many of the meadow plants still occur in these areas, but they are joined by others, such as heath bedstraw, bitter-vetch and mountain pansy.

Wood bitter-vetch is common throughout the drier grassland. The population is stable or increasing and all of the other factors that might affect this plant are under control.

Damper soils within the site support marshy grassland, which is mainly dominated by purple moor grass, but also includes small patches of rush pasture. Flowers of the marshy grassland include tormentil, devil's-bit scabious, heather, lousewort, and petty-whin. There is frequent wild angelica together with the locally uncommon globeflower at the bottom of one field.

Plants indicating nutrient enrichment or disturbance, such as perennial ryegrass, soft brome, white clover, thistles, docks and creeping buttercup are not prominent in the grassland swards. Bracken stands are common around margins of the fields but are not encroaching onto the grassland and they do not cover more than 30% of the site in total. Patches of oak and birch woodland and scrub add to the diversity of the site but tree seedlings and scrub, including gorse, are scarce in the open grassland areas.

Birds of prey, such as red kites and merlin, are often seen feeding in the vicinity of the meadows.

RHOSYDD LLANWRTHWL SSSI:

At least 70% of the site supports a mixture of marshy grassland, valley bog and wet heath. Around 60% of this marshy grassland is dominated by mixtures of rushes and purple moor-grass. Much of the purple moor-grass pasture is quite heathy, supporting plants such as cross-leaved heath, common cottongrass, bog asphodel, cranberry and bog mosses. The rush-dominated pasture has a wider range of associated plants including common marsh-bedstraw, greater bird's-foot-trefoil, carnation sedge, common sorrel, marsh pennywort, marsh violet and, in places, sneezewort, ragged-robin, devil's-bit scabious, ivy-leaved bellflower and some meadow thistle and small sedges.

On the relatively deep deposits of peat in the valley bottom areas of bog vegetation occupy around 20% of the site. Most of the bog vegetation is dominated by mixtures of rushes and sedges, with bog mosses and a variety of typical plants including common cottongrass, cranberry, round-leaved sundew and, locally, an abundance of ivy-leaved bellflower. Small areas around springs support vegetation dominated by small sedges and 'brown' mosses, whilst small water channels within the bogs support plants such as bog pondweed and marsh St John's-wort. Old peat cuttings support a drier type of bog vegetation with hare's-tail cottongrass, purple moor-grass, heather and bog mosses.

The marshy grassland and bog are mixed in with patches of wet heath that occupies at least 10% of the site and supports plants like purple moor-grass, bog asphodel, cross-leaved heath, deer-grass, common cottongrass, carnation sedge, bilberry and bog mosses.

Patches of scrubby wet woodland are scattered throughout the site, providing additional interest, but young willow, alder and birch trees are uncommon in the open wetland areas, and woodland and scrub occupy no more than 10% of the site.

Purple moor-grass and soft rush are not completely dominant anywhere within the marshy grassland, mire and wet heath and there is no significant accumulation of dead vegetation from year to year. Plants indicating disturbance and nutrient enrichment, such as marsh thistle, creeping buttercup, and white clover are not prominent.

Birds of prey, such as red kite, peregrine and merlin, are often seen feeding in the vicinity of the site.

VICARAGE MEADOWS SSSI:

At least a quarter of the site is flower-rich dry, unimproved acid grassland, making up a large proportion of the western field, and part of the upper slope of the eastern field. During the summer months it provides a colourful display of wild flowers. The main grasses are fescues, bents and sweet vernal grass, whilst other flowers present include common knapweed, eyebright, common bird's-foot-trefoil, pignut, betony, tormentil, devil's-bit scabious, dyer's greenweed, great burnet and bitter vetch. Of the more unusual plants, wood bitter-vetch is particularly abundant, fragrant and greater butterfly orchids are common and small white orchid is occasionally seen in the western field. The scarce soft-leaved sedge grows amongst the grasses along the slope in the eastern field. Unusually, woodland flowers such as bluebell and wood anemone may also be found within the grassland sward.

Flowers of devil's-bit scabious, tormentil and marsh violets can be seen growing amongst tussocks of purple moor-grass and sharp-flowered rush in the marshy grassland. Scattered boggy flushes add variety to these wetter areas and are generally marked by an abundance of sedges including star sedge and carnation sedge as well as bog asphodel, common cottongrass, and bog-mosses. Less acidic water feeds a small flush in the western field, where flea sedge, tawny sedge and round-leaved sundew can be found.

Plants indicating disturbance and nutrient enrichment, such as thistles, soft rush, docks, creeping buttercup, and perennial rye grass, and others indicating under-grazing and succession to scrub, such as cock's-foot, and tufted hair-grass are not prominent in the sward. Bracken and scrub are scarce, being largely confined to the field edges, and bare ground is not noticeable in these grassland or wetland areas.

For each plant of particular interest, the population is stable, or increasing and is sustainable in the long term, the range is not contracting, sufficient habitat exists to support the plant and the factors that may affect the plant or its habitat are under control.

ANNEX 2: MANAGEMENT UNIT DETAILS

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

Unit number	Unit Name (if any)	SAC	SPA	CCW owned	Other
Elenydd SSSI:					
1			✔		
2			✔		
3			✔		
4			✔		
5			✔		
6			✔		
7			✔		
8			✔		
9			✔		
10			✔		
11			✔		
12			✔		
13			✔		
14			✔		

Incomplete…

ANNEX 3: SPECIAL FEATURES AND MANAGEMENT UNITS

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

Nm - an infrequently used category where features are at risk of decline within a unit as a result of meeting the management needs of the key feature(s), i.e. under Negative Management. These cases will usually be compensated for by management elsewhere in the plan, and can be used where minor occurrences of a feature would otherwise lead to apparent conflict with another key feature in a unit.
Mn - Management units that are essential for the management of features elsewhere on a site e.g. livestock over-wintering area included within designation boundaries, buffer zones around water bodies, etc.
x – Features not known to be present in the management unit.

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

	Management unit								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Elenydd SAC									
Cwm Doethie – Mynydd Mallaen SAC									
Coetiroedd Cwm Elan SAC									
Elenydd-Mallaen SPA	✔	✔	✔	✔	✔	✔	✔	✔	✔
SAC features									
1.									
SSSI features									
Not yet confirmed									

	Management unit								
	10	**11**	**12**	**12**	**14**	**15**	**16**	**17**	**18**
Elenydd SAC									
Cwm Doethie – Mynydd Mallaen SAC									
Coetiroedd Cwm Elan SAC									
Elenydd-Mallaen SPA	✔	✔	✔	✔	✔				
SAC features									
1.									
SSSI features									
Not yet confirmed									

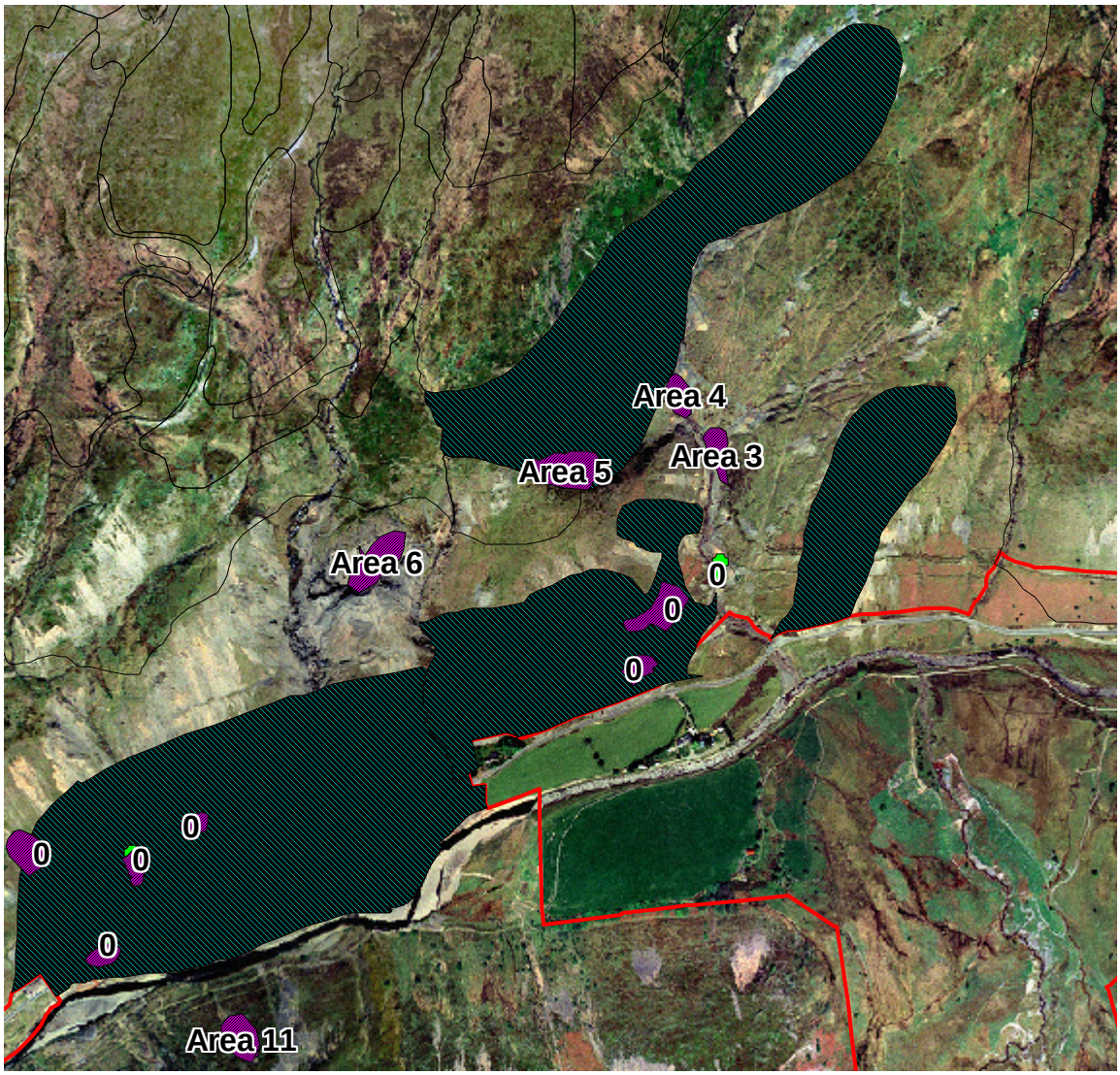
Incomplete…

ANNEX 4: MAPS SHOWING UNITS WHERE OAK WOODLAND IS A KEY HABITAT AND THE DIFFERENT STRUCTURAL TYPES IN THESE AREAS

(To be added when complete.)

ANNEX 5: MAPS SHOWING AREAS THAT CAN POTENTIALLY SUPPORT METAL TOLERANT VEGETATION AND LOCATION OF KEY STANDS OF THIS VEGETATION

Map of Cwm Ystwyth mines:



Areas of blue hatching = area of potential calaminarian grassland
Areas of pink hatching = areas of lower plant/lichen interest as identified by Ray Woods