CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES

CORE MANAGEMENT PLAN
INCLUDING CONSERVATION OBJECTIVES

FOR

GROGWYNION SAC

Version: 4

Date: 10 March 2008 (Minor map edit, February 2013)

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More detailed maps of management units can be made available on request.
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

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PREFACE

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

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

1. VISION FOR THE SITE

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

The river Ystwyth will move as freely as possible within the present-day floodplain, and operation of the natural river processes of erosion, sediment transport and deposition will be maintained. River flow will naturally fluctuate and change with the shifting gravel banks and at Grogwynion the river channel will frequently change course and re-occupy old channels.

A mosaic of habitats will occur throughout the site, ranging from unstable shingle beach communities to heath, grassland, scrub and woodland. The vegetation communities will tend to occur in bands, reflecting the presence of a series of shingle ridges and depressions underlain by sediments of varying grain size and metal concentrations. The extent and location of individual communities will vary in response to natural processes such as flooding, drought and river movement, but exposed shingle and heath will each cover at least 10% of the site. The heath will be very open, with much visible gravel amongst scattered plants of heather. The heather may appear to be dead after periods of drought, but will recover again, and this dieback will help to maintain the open conditions. Lichens will be abundant, including many rare species, and in places Cladonia species will form delicate white mounds. In less dry areas, there are extensive carpets of mosses and liverworts, including species normally found in upland habitats. There will be little grass and scrub growing in open areas but scattered plants of sea campion and sheep's-bit will occur. The mine buildings and spoil heaps at Grogwynion will be undisturbed and support many rare metallophyte lichen species. Non-native species such as Japanese knotweed, Himalayan balsam and rhododendron will be absent from the site.

2. SITE DESCRIPTION

2.1 Area and Designations Covered by this Plan

Grid references: SN650745, SN677715, SN685713, SN694717 – SN724722, SN749728, SN763730

Unitary authority: Ceredigion

SSSI Area (hectares): 58.9
SAC Area (hectares): 41.97

Designations covered:

Gro Ystwyth SSSI
Grogwynion SAC (included wholly within Gro Ystwyth SSSI)

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

2.2 Outline Description

Along the river Ystwyth, a combination of active river processes and heavy metals in the river deposits from past mining, has led to the development of a mosaic of habitats on some of the river gravels, known as **shingle heath**, and a series of heathland areas occur along the river. These types of heathland communities are highly distinctive and very unusual in southern Britain, and the section of the river Ystwyth known as Grogwynion SAC is the largest known area of such communities in England and Wales. They comprise open areas of bare shingle and heather, rich in lichen species, (the SAC features **Calaminarian grassland** and **European dry heath**) amongst bands of great wood- rush, acid grassland, scrub, marshy grassland, broadleaved woodland, and small streams and backwaters.

The river deposits and spoil heaps and buildings of abandoned metal mines at Grogwynion support a rich **assemblage of rare lichens**, including a number of species that are specially adapted to the concentrations of heavy metals, known as metallophyte lichens**.** Lichen species that are normally montane are present at low altitudes at this site and contribute to making this lichen assemblage unique. One species, *Epigloea filifera*, found at Grogwynion, is known no-where else in Britain.

Grogwynion is also of national geomorphological importance because it represents a very rare, if not unique, example of a **braided river system** in Wales. The broad floodplain is characterized by a river channel displaying a pattern of long diagonals connected by shorter crossovers, together with a series of abandoned or partially abandoned channels and extensive shingle bars. The presence of the latter reflects the high mobility of the river channel, which can rapidly change its course in response to high magnitude floods. The site has been the subject of much research in recent years, with significant effort being directed to understand the relationship between former metal mining and the subsequent evolution of the river system. It is one of best localities in Wales for the study of river evolution and fluvial processes.

2.3 Outline of Past and Current Management

The SSSI areas have probably not been managed intensively historically, more typically being lightly grazed in conjunction with adjacent pasture. The lower unit was accidentally burnt from time-to-time from sparks from the adjacent steam railway (closed in the 1960s). At Grogwynion, miners grazed goats, and in the 1970s 'hippies' camped on the shingles. Small amounts of gravel have been removed.
The Wildlife Trust leased Grogwynion from 1991, and CCW took over the lease in 2001.

Currently, most of the SSSI, and all of the SAC, are un-grazed by agricultural stock, except for occasional trespass by sheep at Grogwynion. Rabbits graze where there is adjacent pasture. Only the two lower sections of the SSSI are lightly and occasionally grazed by agricultural stock under section 15 management agreements.
Some control of conifer regeneration, Japanese knotweed and rhododendron has been undertaken on FC and CCW land, and a programme of control of Himalayan Balsam began in 2009 on a whole river basis. Gorse control was carried out in units 3, 4, 8, 9, and 10 in 2008, and further work was carried out in unit 4 in 2009.

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 primarily on tenure, sub-divided further by land parcels.

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

Unit number	**SAC**	**SSSI**	**CCW leased**	Nature Reserve
Gro Ystwyth				
1 Hafod East (FC)		✔		
2 Hafod West (FC)		✔		
3 Grogwynion (FC)	✔	✔		
4 Grogwynion (CCW)	✔	✔	✔	✔
5 Grogwynion mine tips	✔	✔		
6 Gorge and car park (CCW)			✔	✔
7 Pont Llanafan		✔		
8 The Rest (Wenallt)		✔		
9 Dolfor land (Wenallt)		✔		
10 Llanddwy		✔		

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 **2. Calaminarian grassland** (EU Habitat code 6130)	Included within the shingle heath SSSI feature (see below)	1
Annex I habitats SAC is considered to support a significant presence. ***3.*** **European dry heaths** (EU Habitat Code: 4030)	Included within the shingle heath SSSI feature (see below)	1
SPA features		
Not applicable		
Ramsar features		
Not applicable		
SSSI features		
1. Mixture habitats 'Shingle heath'	The SSSI feature shingle heath covers the broad range of floodplain habitats from bare shingle to scrub and woodland, whilst the SAC features of Calaminarian grassland and European dry heath refer more specifically to areas of exposed and partially exposed gravel with open habitat, including areas of heather, moss and lichen. The conservation objectives for the SAC and SSSI feature are therefore combined, concentrating on the most important open heathland habitats described by the SAC features.	1
4. Floodplain and metallophyte lichen assemblage	Floodplain and metallophyte lichens are an integral part of the open habitats of the shingle heath. Therefore, this feature is again included within the conservation objective for shingle heath, with an additional reference to the presence of species on old mine spoil and structures.	1
5. Fluvial landform assemblage	The natural fluctuations and movement of the river are integral to the formation and maintenance of shingle heath. Therefore, this feature is again included within the conservation objective for shingle heath.	1

3.2 Special Features and Management Units

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

Key Features

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

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

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

Other Features

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

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

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

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

x – Features not present in the management unit.

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

Gro Ystwyth	**Management unit**									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
SAC			✔	✔	✔					
SSSI	✔	✔	✔	✔	✔		✔	✔	✔	✔
CCW leased				✔		✔				
SAC features										
2. Calaminarian grassland			**KH**	**KH**	**x**					
3. European dry heaths			**KH**	**KH**	**x**					
SSSI features										
1. Mixture habitats 'Shingle heath'	**x**	**KH**	**KH**	**KH**	**x**	**x**	**x**	**KH**	**KH**	**KH**
4. Floodplain and metallophyte lichen assemblage	**x**	**x**	**sym**	**sym**	**KS**	**x**	**x**	**x**	**x**	**x**
5. Fluvial landform assemblage	**x**	**x**	**geo**	**geo**	**geo**	**x**	**x**	**x**	**x**	**x**

The special interest in unit 1 and 7 has been lost, in unit 1 probably due to natural successional changes rather than mis-management. Unit 7 has probably suffered from nutrient run-off from the adjacent field. It is possible that some interest may be recoverable with drastic management such as bulldozing off the surface layers, but this experimental management is not being advocated at present.

Unit 6 covers areas included within CCW's lease at Grogwynion, but does not support features and is not designated. It includes a gorge, and a car park and picnic area for the nature reserve, used and managed by FC for their adjacent woodland walks.

Although unit 5, toxic mine dumps, does not include shingle heath habitat, it is integral to the functioning of the ecosystem at Grogwynion since the presence of the dumps briefly narrows the floodplain and causes the river to flow faster which then increases its movement downstream. The dynamic nature of the river is essential for the creation and maintenance of shingle heath. Metallophyte lichens have been recorded on the remains of mine structures in this unit.

4. CONSERVATION OBJECTIVES

Background to Conservation Objectives:

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

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

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

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

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

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

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

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

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

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

- Conservation planning and management.

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

- Assessing plans and projects.

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

- Monitoring and reporting.

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

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

b. Format of the conservation objectives

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

Each conservation objective consists of the following two elements:

1. Vision for the feature
2. Performance indicators

As a result of the general practice developed and agreed within the UK Conservation Agencies, conservation objectives include performance indicators, the selection of which should be informed by JNCC guidance on Common Standards 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 Features 1, 2 & 3: Shingle heath (including SAC features: Calaminarian grassland (EU Habitat Code: 6130) and European dry heaths (EU Habitat Code: 4030))

Vision for features 1, 2 & 3

The vision for the shingle heath includes the visions for Calaminarian grassland and European dry heaths, since they are integrally linked.
The vision is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- Open shingle heath (Calaminarian grassland and European dry heath) will occupy between 20% and 70% of the total site area.
- The remainder of the site will be mine spoil, the river and small streams and backwaters and bands of great wood- rush, acid grassland, scrub, marshy grassland, broadleaved woodland and small blocks of conifer plantation.
- The open shingle heath will have much visible gravel with scattered heather *Calluna vulgaris* in places, or in less dry areas, heather will be dominant with a mossy understorey.
- Lichens will be abundant, including many rare metallophyte species, and in places Cladonia species will form delicate white mounds.
- There will be little grass and scrub growing in the open shingle heath but scattered plants of sea campion and sheep's-bit will occur.
- The remains of mine buildings and spoil heaps at Grogwynion will be undisturbed and support many rare metallophyte lichen species.
- Non-native species such as Japanese knotweed, Himalayan balsam and rhododendron will be largely absent from the site and conifers will not be regenerating on the floodplain.
- The river levels will fluctuate naturally, causing drought and floods.
- At least at Grogwynion, the river will be highly mobile, rapidly changing its course during floods and migrating freely across the remaining floodplain.
- All factors affecting the achievement of these conditions are under control.

Performance indicators for Features 1, 2 & 3

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	***Specified limits***
1. Area	*Lower limit:* The extent of **shingle with open vegetation** (European dry heath and Calaminarian grassland) is no less than: Units 1 & 2- 0.1 ha Units 3 & 4 - 10ha Units 7, 8 & 9 - 0.2 ha Unit 10 - 1 ha The extent of open habitat will be mapped from aerial photographs and ground truthed. *Upper limit (Determined by substrate):* Units 1 & 2 - 1 ha Units 3 & 4 – 27 ha Units 7, 8 & 9 - 2 ha Unit 10 - 7 ha
2. Quality	*Lower limit:* At least 2 out of the 3 SAC units and 4 out of the 6 SSSI units should be assessed as '**good condition shingle with open vegetation'** *Upper limit:* No limit set
Site specific definitions	
Shingle with open vegetation (European dry heath and calaminarian grassland)	This definition is provided as site-specific to include all of the following habitats and is drawn from Swain, C. H. et al. 2005: 1 Active gravel with no vegetation 2a Unstable gravel with scattered grasses 2b Unstable gravel with scattered grasses and scattered gorse 3a Exposed gravel with scattered grasses, small mosses and lichens 3b Exposed gravel with scattered grasses, small mosses and lichens and scattered gorse 4a Exposed gravel with scattered heather and moss/lichen patches 4b Exposed gravel with scattered heather and moss/lichen patches and scattered gorse 5a Partially exposed gravel with scattered grasses, moss/lichen patches 5b Partially exposed gravel with scattered grasses, moss/lichen patches and scattered gorse 6a Partially exposed gravel with scattered heather and grass, patches of small mosses and lichens 6b Partially exposed gravel with scattered heather and grass, patches of small mosses and lichens and scattered gorse 7a Mature heather (*Calluna*) with mossy understorey, lichen 7b Mature heather with mossy understorey, lichen and scattered gorse 7c Mature heather with mossy understorey, lichen and scattered gorse and birch

Site specific definitions	
Good condition shingle with open vegetation	Within each unit: • The extent of gorse does not exceed: Units 1& 2 - 0.1 ha Units 3 & 4 - 2.3 ha Unit 5 - 0.2 ha Units 7, 8 & 9 - 0.6 ha Unit 10 - 2.7 ha and • In units 3 and 4, at least 3 of the following metallophytes should be present: *Absconditella trivialis, Coppinsia minutissima, Epilichen scabrosus, Gyalidea subscutellaris, Polyblastia gelatinosa, Rimularia badioatra, Stereocaulon condensatum, Stereocaulon leucophaeopsis, Vezdaea acicularis, Cladonia fragilissima, Cladonia uncialis uncialis, Epigloea filifera, Placynthiella hyprhoda, Polyblastia inumbrata, Thelocarbon impressellum, Baeomyces placophyllus, Placopsis lambii, Sarcosagium camprestre Steinia geophana, Stereocaulon nanodes, Vezdaea leprosa, Scoliciosporum umbrinum, Stereocaulon evolutum, Stereocaulon vesuvianum, Vezdaea cobria* and • The minimum extent of bryophyte/lichen rich vegetation (see description and picture) in each unit is: Units 1 & 2 - 0.07 ha i.e. 70% of extent of **shingle with open vegetation** (total extent 0.1ha); Units 3 & 4 - 6.4 ha i.e. c. 60% of extent of **shingle with open vegetation** (total extent 10ha) Units 7,8 & 9 - 0.1 ha i.e. 50% of extent of **shingle with open vegetation** (total extent 0.2ha) Unit 10 - 0.44 ha i.e. c.4000 m² of extent of **shingle with open vegetation** (total extent 7ha) • Maximum area of **alien species** (see list) is: Units 1 & 2 – 1m x 1m Units 3 & 4 – 4m x 4m Unit 5 – 1m x 1m Units 7, 8 & 9 – 1m x 1m Unit 10 – 2m x 2m There should be <50% cover of vascular plants or moss, giving an open substrate comprised of scattered shingle embedded in or lying on fine sediment and algal "squidge" (material which is gelatinous when hydrated but can harden to a crust in dry conditions). Terricolous and saxicolous (on the shingle) lichens should be abundant. See below illustration.

Site specific definitions	
	
Alien species	Himalayan balsam, Japanese knotweed, rhododendron and conifers.

4.2 Conservation Objective for Feature 4: Floodplain and metallophyte Lichen Assemblage

Vision for feature 4

The vision for this feature is included in that for features 1-3.

Performance indicators for Feature 4

The performance indicators for this feature are included in those for features 1-3.

4.3 Conservation objective for Feature 5: Fluvial landform assemblage

Vision for feature 5

The vision for this feature is included in that for features 1-3.

Performance indicators for Feature 5

Performance indicators for feature condition	
Attribute	***Specified limits***

1. Form and function	*Lower limit:* No limit set. *Upper limit:* The course of the river will not be further modified on, or immediately upstream of the site by any man-made objects or constructions. No substratum will be removed from or adjacent to the river.

5. ASSESSMENT OF CONSERVATION STATUS AND MANAGEMENT REQUIREMENTS

This part of the document provides:

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

5.1 Conservation Status and Management Requirements of Features 1, 2 & 3: Shingle heath (including SAC features: Calaminarian grassland (EU Habitat Code: 6130) and European dry heaths (EU Habitat Code: 4030))

Conservation Status of Features 1, 2 & 3

The condition of the shingle heath in July 2010 is unfavourable and probably declining, mainly due to the invasion of gorse scrub in all designated units except unit 5, Grogwynion mine tips. Small amounts of Japanese knotweed, Himalayan balsam and rhododendron are also present, as are self-seeded conifers.

Detailed monitoring of the SAC at Grogwynion was carried out in 2010.

Management Requirements of Features 1-3

The management requirements are principally the control of invading scrub, mainly gorse, and eradication of invasive non-native species. The continuation of occasional light grazing is probably also required on two of the units.

Scrub

Gorse had increased in all units, except on the mine spoil in unit 5, which is too toxic for most higher plants.

Control work was carried out in 2008 and 2009, targeted around remaining good quality heath. More work is likely to be necessary in the future.

Self-seeding conifers

Conifer regeneration in open shingle heath occurs mainly in units 1, 2, 3 and 4 owned by FC and CCW. Some clearance work has been carried out, but periodic work is likely to continue to be necessary as re-invasion occurs. Much of the surrounding plantations are being gradually converted to broad-leaves under Forestry Commissions Forest Design Plan, and this should reduce re-invasion in time.

Rhododendron

Rhododendron control work has been carried out on CCW and FC units but follow-up work is needed in unit 3 to clear remaining bushes.

Himalayan balsam and Japanese knotweed
Some clearance of Himalayan Balsam was carried out by FC in 2008 in unit 3, but a river-wide programme of control was commenced in 2009 in partnership with EAW, and covered units 1-9. EAW and FC funding in 2010 was able to cover units 1-7. The work will need to be repeated for the next 3-5 years for the programme to be successful.

Grazing
Very light grazing occurs under management agreements in units 8 and 10.
In unit 8, the Rest, an agreement stipulates that and the site will be grazed for 1 week in May each year by 7-12 sheep. Cattle can be moved across the site approximately 6 times per year.
In unit 10, Llanddwy, the agreement allows limited grazing by 50 sheep between May and September in conjunction with adjacent fields.
Units 8 and 10 need to be monitored and the effectiveness of the management prescriptions reviewed.

Other units across the site are not grazed by agricultural stock, except for occasional trespass by small numbers of sheep in unit 4 at Grogwynion, which is not an issue. It is impractical and probably undesirable to introduce grazing to any of these units. Rabbits graze on the north side of the river in unit 4, very usefully eating young gorse.

Nutrient levels
In unit 7, Pont Llanafan there is evidence of some nutrient enrichment from the adjacent pasture. The shingle heath in unit 7 has been lost, and its restoration is not a high priority. Some nutrient enrichment from the adjacent field was also evident in unit 8, the Rest. Under management agreement, the landowner has therefore agreed to a 10 m buffer of no fertilisers adjacent to the SSSI.

5.2 Conservation Status and Management Requirements of Feature 4: Floodplain and metallophyte lichen assemblage

Conservation Status of Feature 4
The condition of the lichen assemblage at November 2007 is unfavourable and probably declining, mainly due to the invasion of gorse scrub in all designated units except unit 5, Grogwynion mine tips. Unit 5 is also probably also unfavourable, however, since lichen species may have been lost through disturbance from mountain bikers.

Management Requirements of Feature 4

See the management requirements for feature 1, and in addition the control of disturbance in unit 3, Grogwynion mine tips.

Disturbance of spoil tips
Since around 2004 the mine tips at Grogwynion have become popular with young mountain bikers who create ramps with the spoil. Disturbance is severe in the centre of this unit, but so far, the margins, including old mine structures, have not been adversely affected and a survey in 2009 showed that lichens survive in these areas. A letter to schools and speaking directly to the bikers have had no impact and FC's intention to create facilities elsewhere did not come to fruition. Enforcement action is difficult since attempts to contact the owner and confirm his ownership have been unsuccessful.

5.3 Conservation Status and Management Requirements of Feature 5: Fluvial landform assemblage

Conservation Status of Feature 5
The condition of the fluvial landform assemblage at November 2010 is favourable. The river is highly mobile and moving freely at Grogwynion.

Management Requirements of Feature 5
No intervention is required. The clearance of some scrub at Grogwynion may have helped the mobility of the river.

6. ACTION PLAN: SUMMARY

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

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
001	000511	Hafod East (FC)	The special interest has been lost in this unit due to natural successional changes and attempts to restore it are not considered a high priority. Some scrub clearance work has been undertaken.	No
002	000512	Hafod West (FC)	Invasion by gorse and self-seeding conifers threaten the heath in this unit. A continued programme of control is needed.	Yes
003	000513	Grogwynion (FC)	Scrub invasion, mainly by gorse and some self-seeding conifers is an on-going issue. A control programme is underway. Follow up treatment of rhododendron and Japanese knotweed is also planned, together with control of Himalayan balsam.	Yes
004	000514	Grogwynion (CCW)	Scrub invasion, mainly by gorse, is an on-going issue. A control programme is planned. Follow up treatment of Japanese knotweed is also planned, together with control of Himalayan balsam. Clearance of self-seeded conifers may be needed every 5 years or so. Japanese knotweed invasion is severe in the gorge (non-designated but owned by CCW) and the control programme needs to extend to here.	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
005	000515	Grogwynion mine tips	The mine tips are used by young mountain bikers who have created ramps with the spoil. Disturbance is severe in the centre of the unit and a survey is needed to ascertain if any lichen interest survives around the margins to determine whether further action is a priority. Attempts to contact the owner have not been successful and letters to schools and speaking directly to the bikers have had no impact.	Yes
007	000518	Pont Llanafan	The special interest of this unit has been lost due to scrub invasion and possibly due to nutrient run-off from the field above. Attempts to restore the shingle heath here is not a high priority.	No
008	000519	The Rest (Wenallt)	Invasion by gorse threatens the heath in this unit. A programme of control is needed. Nutrient run-off from the adjacent field may also be an issue. Occasional light grazing is probably required to keep the heath open.	Yes
009	000520	Dolfor land (Wenallt)	Invasion by gorse threatens the heath in this unit. A programme of control is needed. Nutrient run-off from the adjacent field may also be an issue. Occasional light grazing is probably required to keep the heath open.	Yes
010	000522	Llanddwy	Invasion by gorse threatens the heath in this unit. A programme of control is needed. A s15 is in place for occasional light grazing and on-going control of Japanese knotweed.	Yes

7. GLOSSARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Special Feature See **feature**.

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

Unit See **management unit.**

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

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

8. REFERENCES

Swain, C. H. et al. 2005. The ecological, geomorphological and geochemical controls on river shingle heath development on the Afon Rheidol and Afon Ystwyth, Ceredigion. CCW Contract Report RE0492.
Available on request.

APPENDIX 1

Classification of shingle vegetation (Swain et al., 2005)

Shingle Heath Vegetation Categories

Gravel showing:

1 Active gravel with no vegetation
2a Unstable gravel with scattered grasses
2b Unstable gravel with scattered grasses and scattered gorse
3a Exposed gravel with scattered grasses, small mosses and lichens
3b Exposed gravel with scattered grasses, small mosses and lichens and scattered gorse
4a Exposed gravel with scattered heather and moss/lichen patches
4b Exposed gravel with scattered heather and moss/lichen patches and scattered gorse
5a Partially exposed gravel with scattered grasses, moss/lichen patches
5b Partially exposed gravel with scattered grasses, moss/lichen patches and scattered gorse
6a Partially exposed gravel with scattered heather and grass, patches of small mosses and lichens
6b Partially exposed gravel with scattered heather and grass, patches of small mosses and lichens and scattered gorse

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No gravel showing:

7a Mature heather (*Calluna*) with mossy understorey, lichen
7b Mature heather with mossy understorey, lichen and scattered gorse
7c Mature heather with mossy understorey, lichen and scattered gorse and birch
8a Mature gorse and heather with grasses and moss
8b Mature gorse and heather with grasses and moss and scattered young birch
9a Scattered heather (*Calluna*) with grass and moss/lichen
9b Scattered heather with grass and moss/lichen and scattered gorse
9c Scattered heather with grass and moss/lichen and scattered gorse and young trees and woodrush
9d Scattered heather with grass and moss/lichen and scattered gorse and tussock grass
9e Scattered gorse (*Ulex*) with grass and moss/lichen
10a Gorse (*Ulex*) with a grassy understorey
10b Gorse with a mossy understorey
10c Gorse with scattered trees
11a Grass with scattered tussocks and woodrush
11b Grass with scattered gorse
11c Grass with young trees woodrush and brambles
12 Tussock grass (Molinia) with scattered grass and woodrush
13 Woodrush (Luzula) with occasional brambles, grass, young trees
14 Woodland (Alnus, Salix) with grasses, woodrush and brambles
15 Bracken
16 Disturbed land
17 Water
18 Other (e.g. reeds, Japanese knotweed)

NB. Unstable gravel = moves underfoot and has no moss
Exposed gravel = approx 50% or more of the ground surface is gravel