

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

**CORE MANAGEMENT PLAN
INCLUDING CONSERVATION OBJECTIVES**

FOR

Llwyn SAC

Version: Final
Date: 19 March 2008
Approved by: NR Thomas

**More detailed maps of management units can be provided on request.
A Welsh version of all or part of this document can be made available on request.**



CONTENTS

Preface: Purpose of this document

- 1. Vision for the Site**
- 2. Site Description**
 - 2.1 Area and Designations Covered by this Plan**
 - 2.2 Outline Description**
 - 2.3 Outline of Past and Current Management**
 - 2.4 Management Units**
- 3. The Special Features**
 - 3.1 Confirmation of Special Features**
 - 3.2 Special Features and Management Units**
- 4. Conservation Objectives**

Background to Conservation Objectives

 - 4.1 Conservation Objective for Feature 1:**
*Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion alvae)*
- 5. Assessment of Conservation Status and Management Requirements:**
 - 5.1 Conservation Status and Management Requirements of Feature 1:**
*Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion alvae)*
- 6. Action Plan: Summary**
- 7. Glossary**
- 8. References**

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. 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.

It is our aim to maintain the existing 17.2 ha woodland as follows:

- *With a canopy dominated by alder and ash*
- *A naturally diverse under-storey and age structure*
- *Sufficient amounts of natural regeneration to perpetuate the woodland.*

It is our aim to maintain the existing 3.0 ha of swamp as follows:

- *With a tall lush herbaceous vegetation, dominated by tall sedges and rushes*
- *As a number of glades either within or at the edges of the woodland*

At least 70% of the site will be covered by a sustainable semi-natural broadleaved woodland. The trees will be locally native broadleaf species, with a dominance of alder and ash in the canopy. Sycamore should be scarce. In the long term, the canopy will include trees of all ages, and particular attention will be paid to maintaining old, veteran trees, for the lower plants that thrive on their bark. Dead wood, standing and fallen, will be retained to provide habitat for invertebrates, fungi and other woodland species. The canopy will not be completely closed; approximately 20% of the woodland will include a dynamic shifting pattern of canopy gaps. Expansion of scattered alder trees will be permitted into swamp and other open ground providing it does not compromise this feature. Existing glades will be maintained by selective removal of invasive trees and shrubs. In the longer term, glades should occur naturally as trees suffer windthrow, senescence or the activities of large herbivores keep seedling and sapling growth in check.

2. **SITE DESCRIPTION**

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

Grid reference(s): 03 22 16W, 53 10 01N / SJ083642

Unitary authority: Denbighshire

Area (hectares): 22.1 ha

Designations covered: Llyn SAC
Llyn SSSI

The SAC & SSSI have identical boundaries.

Detailed maps of the designated sites are available through CCW's web site:
<http://www.ccw.gov.uk/interactive-maps/protected-areas-map.aspx>

The outline of the Llwyn SAC & SSSI boundary is shown in Figure One below.



Figure One: Getmapping Aerial photograph 2006. Red line indicates the boundary of the Llwyn SAC & Llwyn SSSI site boundary

2.2 Outline Description

Llwyn wet woodland is situated in the Vale of Clwyd on the floodplain of the Afon Clywedog, one kilometre south east of Denbigh and below the village of Llanrhaeadr.

Llwyn is comprised of two blocks of floodplain woodland (see Figure One) and small areas of marshy grassland and swamp. The land slopes approximately 6.5m from west to east towards the river floodplain; drainage is impeded throughout, with numerous springs arising in within the site. Central areas of the woodland are underlain by up to 1.5m of peat, with layers of cohesive clay and sand and gravels below this.

Llwyn's primary ecological interest is its woodland communities. NVC woodland community type **W7** alder *Alnus glutinosa* – ash *Fraxinus excelsior* – yellow pimpernel *Lysimachia nemorum* woodland, exists in mosaic with lesser quantities of **W8** ash – field maple *Acer campestre* – dog's mercury *Mercurialis perennis* woodland, **W6** alder – common nettle *Urtica dioica* woodland and **W5** alder – greater-tussock sedge *Carex paniculata* woodland. These communities, with the exception of **W8**, are the SAC feature. Woodland communities are interspersed with areas of swamp and marshy grassland.

2.3 Outline of Past and Current Management

Most of the site is secondary woodland that has developed on wetland, which over the past 100–200 years has proved too intractable for drainage and agricultural improvement. The surrounding land, especially to the east, further onto the floodplain of the River Clywedog and River Clwyd, has been drained and agriculturally improved in recent decades to support intensive dairy farming. The last woodland clearance occurred in the 1980s. A railway embankment constructed in the 19th century that bisects the site may have played a role in holding back water arising from springs. This may have further impeded drainage to the benefit of woodland regeneration. The successful expansion of this woodland also reflects the degree to which grazing, primarily by cattle, has fluctuated over the years.

The woodland is now fenced and stock-free, allowing natural regeneration to occur unimpeded, through minimum intervention management. However, expansion of the woodland is currently impeded by intensive and extensive agricultural operations.

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 tenure.

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

Table One: Management units are based on tenure. There is only one SAC feature: Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> . This in turn is comprised of 2 SSSI features which in broad terms are called ‘wet woodland’ and ‘swamp and marshy grassland’.			
Unit number	Llwyn SAC	Llwyn SSSI	CCW owned
001	✓	✓	No
002	✓	✓	No
003	✓	✓	No
004	✓	✓	No
005	✓	✓	No
006	✓	✓	No
007	✓	✓	No
008	✓	✓	No

A map showing the management units accompanies this plan.

3. THE SPECIAL FEATURES

3.1 Confirmation of Special Features

<i>Designated feature</i>	<i>Relationships, nomenclature etc</i>	<i>Conservation Objective in part 4</i>
<i>SAC features</i>		
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion alvae</i>)	This is a type B Annex I habitat, for which this site is considered to be one of the best areas in the United Kingdom.	4.1
<i>SSSI features</i>		
Semi Natural Woodland:	W5: <i>Alnus glutinosa-Carex paniculata</i> woodland. W6: <i>Alnus glutinosa-Urtica dioica</i> woodland. Alnus W7: <i>Alnus glutinosa-Fraxinus excelsior-Lysimachia nemorum</i> woodland (W8: <i>Fraxinus excelsior-Acer campestre-Mercurialis perennis</i> woodland*)	4.1
Swamp:	S7: <i>Carex acutiformis</i> swamp. S26 <i>Phragmites australis-Urtica dioica</i> fen	
Marshy Grassland:	M23: <i>Juncus effusus/acutiflorus-Galium palustre</i> rush pasture. M27: <i>Filipendula ulmaria-Angelica sylvestris</i> tall herb fen	
*Non-SAC feature		

3.2 Special Features and Management Units

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

Key Features

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

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.

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

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

Llwyn	Management Units							
	1	2	3	4	5	6	7	8
SAC	✓	✓	✓	✓	✓	✓	✓	✓
SSSI	✓	✓	✓	✓	✓	✓	✓	✓
SAC features								
1. Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i>	KH	KH	KH	KH	KH	KH	KH	KH
SSSI features								
2. Broad-leaved woodland		KH	KH	KH	KH	KH	KH	
3. Swamp				Sym		KH		
4. Marshy grassland	KH					Sym		KH

4. CONSERVATION OBJECTIVES

Background to Conservation Objectives:

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

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

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

Box 1

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

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

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

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

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

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

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

- Conservation planning and management.

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

- Assessing plans and projects.

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

- Monitoring and reporting.

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

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

b. Format of the conservation objectives

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

Each conservation objective consists of the following two elements:

1. Vision for the feature
2. Performance indicators

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

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

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

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

4.1 Conservation Objective for Feature 1:

Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) (EU Habitat Code: 91E0)

Vision for feature 1

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

- Wet woodland will occupy at least 70% (current extent) of the site.
- The trees and shrubs will be locally native broadleaved species with alder dominating the canopy.
- The woodland is maintained as far as possible by natural processes.
- The presence of sycamore *Acer pseudoplatanus* and other non-native species will be discouraged by maintaining a high water table.
- The woodland will contain trees and shrubs of all ages and sizes, as mixtures or in single-aged groups. Over-mature trees will be scattered throughout the site.
- The shrub layer will comprise of a scattering of distinctive species such as bird cherry *Prunus padus*, guelder-rose *Viburnum opulus*, buckthorn *Rhamnus catharticus* and alder buckthorn *Frangula alnus*.
- A changing patchwork of naturally occurring pattern of gaps and temporary glades will give rise to structural diversity.
- Regeneration will be from the base of the alders by means of self-coppicing, with limited disturbed ground available, to allow natural alder seed regeneration.
- The field and ground layers will be a patchwork of alluvial species with no one species dominating. It will contain such species such as remote sedge *Carex remota*, meadowsweet *Filipendula ulmaria*, and nettle on drier areas.
- There will be abundant dead and dying trees with holes and hollows, rot columns, torn off limbs and rotten branches throughout the woodland
- All factors affecting the achievement of these conditions are under control

Performance indicators for Feature 1

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

<i>Performance indicators for feature condition of Alnus glutinosa and Fraxinus excelsior (Alno Padion, Alnion incanae, Salicion albae)</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Habitat extent	<p>The current extent of the alluvial forest is 22 hectares. This comprises a minimum of 18ha of woodland (as per 1995 & 2000 surveys). The site is constrained by agricultural land.</p> <p>Loss of extent will only be to other semi-natural habitats of swamp marshy grassland and by natural processes.</p>	<p><i>Upper Limit:</i> None set</p> <p><i>Lower Limit:</i> A natural transfer of up to 10% of extent, to other semi-natural wetland habitats</p>
A2. Canopy cover	<p>The mean canopy cover across the site should be >50%.</p> <p>An upper limit of 90% cover is required as a signal to ensure that gaps of mixed age occur throughout the area.</p>	<p><i>Upper Limit:</i> 90% cover</p> <p><i>Lower Limit:</i> 50% cover</p>

A3. Species composition	Alder shall be the dominant species of the canopy.	<i>Lower Limit:</i> > 50% of canopy-forming trees
A3. Species composition	Sycamore is not a characteristic tree of native alluvial forest, and has the potential to increase at the expense of native wetland flora. Therefore its occurrence and distribution should be scarce within the under-storey and the canopy.	<i>Upper Limit:</i> < No canopy-forming trees
A3. Species composition	Distinctive shrubs should occur throughout the site, including thickets and herbaceous areas.	<i>Lower Limit:</i> > 50% of samples with at least 3 distinctive species
A4. Structure	Over mature trees should occur throughout the site to increase age structure of the wood and provide dead wood.	<i>Lower Limit:</i> > 1 over mature trees in each 50 x 50m sample
A4. Structure	A shrub layer occurring throughout the site is characteristic of alluvial forests.	<i>Upper Limit:</i> A mean of < 30 % of the ground coverage across the site <i>Lower Limit:</i> A mean of at least 5% ground coverage of the site
A5. Regeneration	A dynamic shifting pattern of gaps in the canopy should be scattered throughout the site, to encourage regeneration and increase the age structure of the woodland.	<i>Upper Limit:</i> None set <i>Lower Limit:</i> In at least 30% of sampled area
A5. Regeneration	'Advanced regeneration' is indicative of the regeneration potential of species under the canopy	<i>Lower Limit:</i> At least 5 trees per sample point
A5. Regeneration	Regeneration of the woodland depends upon viable saplings utilising new gaps in the canopy	<i>Lower Limit:</i> Mean of >2 saplings per canopy gap
A5. Regeneration	For alder to continue to dominate the woodland, viable seedling or regeneration of alder through self-coppicing needs to occur in under-storey gaps	<i>Lower Limit:</i> Seedlings or self-coppiced alder in 50% of canopy gaps
A6. Dead wood	Dead wood consists of fallen trees, broken branches, dead branches on live trees and standing dead trees, which will occur throughout the site.	<i>Upper Limit:</i> None set <i>Lower Limit:</i> More than one piece of dead wood in at least 80% of sample areas
A7. Quality indicators	A distinctive alluvial forest ground flora should occur throughout the site	<i>Upper Limit:</i> None set <i>Lower Limit:</i> In at least 90% of sample area
<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
F1 Water quantity	A high water table is required throughout the year to ensure that typical alder forest species survive, rather than species of drier conditions	<i>Lower Limit:</i> High water table in summer months
F2 Water quality	Eutrophication will increase the nutrient status of the woodland and swamp, potentially altering species composition	<i>Lower Limit:</i> General Quality Assessment grade 'A'
F3 Recreational pressure	The parts of the woodland to which public access is provided are susceptible to trampling as paths widen and ground	Paths and boardwalks to be kept in good repair

	conditions deteriorate.	
F4 Livestock grazing	Heavy grazing may impede regeneration of seeds. Limited periods of livestock (cattle) access may be beneficial, through disturbance of sediments – allowing alder seedling establishment	No grazing at present until a baseline study of tree seedling regeneration has been completed during next monitoring period. Ensure gates and fencing are in good repair.
F5 Invasive species	e.g. Himalayan balsam <i>Impatiens glandulifera</i>	Invasive species absent
F6 Silvicultural operations	The frequently water-saturated and soft ground conditions make Forestry Operations, including timber extraction, impractical over most of the site. Machinery would damage the ground flora or woodland interest (this includes damage from windthrow after harvest, and from access routes used for transport of felled timber). However, some coppicing of the canopy trees may be required in the future to diversify the age structure.	Coupe width should be no greater than one and a half times canopy height and should be on a 20-30 year rotation.

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: *Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)* (EU Habitat Code: 91E0)

Conservation Status of Feature 1

The Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno Padion, Alnion incanae, Salicion albae*), at Llwyn SAC was considered to be in a FAVOURABLE: UN-CLASSIFIED condition, as of 2003. See pages 7-10 of the SAC monitoring report (Creer, J, 2003). This assessment was made on the basis of the following:

Extent:

There was no loss in area recorded during the monitoring of Llwyn SAC. The attribute was measured using the GetMapping 2000 aerial photographs and compared to previous records. Therefore the overall assessment of 'extent' at Llwyn SAC is favourable.

Structure & Process:

The overall assessment of the 'structure & process' at Llwyn SAC, is that all sub-attributes passed, thus being in favourable condition.

Regeneration:

Four out of the five sub-attributes fulfilled the criteria set out in the conservation objective at Llwyn SAC.

The alder regeneration sub-attribute failed the criteria set out in the original conservation objective; however, this sub-attribute was considered to be a longer-term criterion and should be reviewed in due course. Thus the overall assessment of 'regeneration' is considered to be favourable.

Composition:

All four sub-attributes fulfilled the criteria set out in the conservation objective at Llwyn SAC. The overall assessment of the composition attribute at Llwyn SAC is favourable.

Quality indicators:

Table 8 shows the results from the monitoring of the quality indicator attribute at Llwyn SAC.

All 16 sample plots fulfilled the criteria set out in the conservation objective, therefore the overall assessment of the 'quality indicators' at Llwyn SAC is favourable

SAC monitoring concentrated on management units 6,7 and to a lesser extent 4. This is because these blocks are the largest management units which were judged to represent the most typical areas of the SAC wet woodland feature, and where access was easiest and permitted. For further details regarding the most recent SAC Monitoring process, see Creer, J. (2003).

Management Requirements of Feature 1

Water Regime

The wet woodland requires a high water table to be maintained throughout the year and it is essential that this be achieved without causing problems for the drainage of the adjacent agriculturally improved

land, most of which is permanent pasture. Internal streams and ditches will be maintained so as to provide slow flows and the perfusion of water through the site. Perimeter watercourses may need to be adapted to direct water into the site, while at times of heavy rainfall and / or high flows these will still be capable of directing water rapidly into the main river system. Lengths of main river adjacent to the site will continue to be maintained annually by the Environment Agency.

Eutrophication

Some of the woodland habitat on this site naturally occurs on alluvial soils with high nutrient status. Care will be needed to ensure that water entering the site does not excessively add to the nutrient status, such that there is a significant increase in dense stands of tall herbs, for example nettles and great willowherb *Epilobium hirsutum*.

Grazing

In past years, parts of the woodland have been subject to sporadic grazing by either sheep or cattle. If too intensive, this can prevent the natural regeneration of the woodland, since seedlings are given no opportunity to grow into viable trees. However, some limited periods of livestock access (by cattle in particular) could be beneficial as the churning of the ground produces niches for alder seedling establishment. For the short term, livestock are best excluded until a baseline study of potential tree seedling/sapling regeneration has been completed. Fences should be erected and maintained in order to obtain the required control.

Invasive Species

Sycamore is present within the wood and has the potential to increase at the expense of the native flora especially where ground conditions are driest. Young trees, saplings and seedlings are at present uncommon, but should be removed when they occur. Control of advance regeneration of sycamore under the existing canopy and in canopy gaps is required.

Himalayan balsam on nearby riverbanks and tributary streams could possibly colonise the site with the consequent loss of habitat diversity as this aggressive plant forms dense stands. Attention is required in order for early detection and removal of any seedlings.

A watch should be kept for any alder trees showing signs of Phytophthora root disease (a form of *P. cambivora*), although this is primarily a problem with riverside and streamside alders. Should diseased trees be noted the Forestry Commission and Environment Agency should be informed. Current advice is that the disease is left to run its course.

Recreational Pressure

The parts of the woodland to which public access is provided are susceptible to trampling and the widening of paths as ground conditions deteriorate. Paths and boardwalks should be maintained in order to reduce visitor damage.

Open Ground and Glades

Existing glades and open ground should be maintained by selective removal of encroaching trees and shrubs, and by providing necessary fencing, continued access to livestock. Glades created by canopy gaps will be either be allowed to regenerate as woodland or retained as swamp depending upon the dominant species present.

Silvicultural Operations

The frequently water-saturated and soft ground conditions make Forestry Operations, including timber extraction, impractical over most of the site. Machinery would damage the ground flora or woodland interest (this includes damage from windthrow after harvest, and from access routes used for transport of felled timber). However, some coppicing of the canopy trees may be required in the future diversify the age structure. Coupe width should be no greater than one and a half times canopy height and should be on a 20-30 year rotation.

6. ACTION PLAN: SUMMARY

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

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
1	000743	Llwyn: Brookhouse 1	Site is in favourable condition at present. To ensure this remains the case, stock proof fencing needs to be maintained in good condition, water levels may need managing in the future, and ditch maintenance should not deepen or widen ditches.	Yes
2	000744	Llwyn: Brookhouse 2	Site is in favourable condition at present. To ensure this remains the case, stock proof fencing needs to be maintained in good condition, water levels may need managing in the future, and ditch maintenance should not deepen or widen ditches.	Yes
3	000745	Llwyn: unknown owner	Site is in favourable condition at present. To ensure this remains the case, stock proof fencing needs to be maintained in good condition, water levels may need managing in the future, and ditch maintenance should not deepen or widen ditches.	Yes
4	000746	Llwyn: Llwyn Banc	Site is in favourable condition at present. To ensure this remains the case, stock proof fencing needs to be maintained in good condition, water levels may need managing in the future, and ditch maintenance should not deepen or widen ditches.	Yes
5	000747	Llwyn: Glan Aber	Site is in favourable condition at present. To ensure this remains the case, stock proof fencing needs to be maintained in good condition, water levels may need managing in the future, and ditch maintenance should not deepen or widen ditches.	Yes
6	000748	Llwyn: Llwyn Mawr	Site is in favourable condition at present. To ensure this remains the case, stock proof fencing needs to be maintained in good condition, water levels may need managing in the future, and ditch maintenance should not deepen or widen ditches.	Yes
7	000749	Llwyn: Coed Cymru / Woodland Trust	Site is in favourable condition at present. To ensure this remains the case, stock proof fencing needs to be maintained in good condition, water levels may need managing in the future, and ditch maintenance should not deepen or widen ditches. Sycamore will need to be removed from this unit in the future.	Yes
8	000750	Llwyn: Pen Bryn Llan	Site is in favourable condition at present. To ensure this remains the case, stock proof fencing needs to be maintained in good condition, water levels may need managing in the future, and ditch maintenance should not deepen or widen ditches.	Yes

7. GLOSSARY

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

- Action** A recognisable and individually described act, undertaking or **project** of any kind, specified in section 6 of a **Core Management Plan** or **Management Plan**, as being required for the **conservation management** of a site.
- Attribute** A quantifiable and monitorable characteristic of a **feature** that, in combination with other such attributes, describes its **condition**.
- Common Standards Monitoring** A set of principles developed jointly by the UK conservation agencies to help ensure a consistent approach to **monitoring** and reporting on the **features** of sites designated for nature conservation, supported by guidance on identification of **attributes** and monitoring methodologies.
- Condition** A description of the state of a feature in terms of qualities or **attributes** that are relevant in a nature conservation context. For example the condition of a habitat usually includes its extent and species composition and might also include aspects of its ecological functioning, spatial distribution and so on. The condition of a species population usually includes its total size and might also include its age structure, productivity, relationship to other populations and spatial distribution. Aspects of the habitat(s) on which a species population depends may also be considered as attributes of its condition.
- Condition assessment** The process of characterising the **condition** of a **feature** with particular reference to whether the aspirations for its condition, as expressed in its **conservation objective**, are being met.
- Condition categories** The **condition** of **feature** can be categorised, following **condition assessment** as one of the following²:
- Favourable: maintained;
 - Favourable: recovered;
 - Favourable: un-classified
 - Unfavourable: recovering;
 - Unfavourable: no change;
 - Unfavourable: declining;
 - Unfavourable: un-classified
 - Partially destroyed;
 - Destroyed.

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

- 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**.

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

Plan or project	<p>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.</p> <p>Plan: a document prepared or adopted by a public body or statutory undertaker, intended to influence decisions on the carrying out of projects.</p> <p>Decisions on plans and projects which affect Natura 2000 and Ramsar sites are subject to specific legal and policy procedures.</p>
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

Alexander, J (1996): Woodland Survey of Wales: Alder Woodlands on SSSI. Produced by Woodwise for Countryside Council for Wales, North Wales Region, Mold and CCW District Team Preliminary Survey (2000).

Creer, J. (2003): Llwyn SAC Monitoring Report. UK0030185, Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno padion*, *Alnion incanae*, *Salicion albae*) (91E0). CCW report.

Middlemarch Environmental Ltd (2005): A Topographical and Hydrological baseline study of a wet woodland. Llwyn SSSI/SAC Llanrhaeadr Y N, Denbigh and Recommendations for Water Level Management. A report to the Countryside Council for Wales Report. Report Number 11.