

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

**CORE MANAGEMENT PLAN  
INCLUDING CONSERVATION OBJECTIVES**

**FOR  
MONTGOMERY CANAL SAC (& SSSI)**

**Version:** 1

**Date:** 22<sup>nd</sup> January 2008

**Approved by:** David Mitchell

**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:  
*Luronium natans* (Floating water-plantain)**
  - 4.2 Conservation Objective for Feature 2:  
Open Water (Canal) Habitat**
- 5. Assessment of Conservation Status and Management Requirements:**
  - 5.1 Conservation Status and Management Requirements of Feature 1:  
*Luronium natans* (Floating water-plantain)**
  - 5.2 Conservation Status and Management Requirements of Feature 2:  
Open Water (Canal) Habitat**
- 6. Action Plan: Summary**
- 7. Glossary**
- 8. References**

## **PREFACE**

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

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

### **1. VISION FOR THE SITE**

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

*At least 75% of the canal lengths have open water supporting a rich assemblage of floating-leaved, emergent and submerged plants at a cover of 30% or greater. Plant species include broad-leaved pondweed, autumnal water-starwort, rigid hornwort, alternate water milfoil, white water lily, greater duckweed, long-stalked pondweed, flat-stalked pondweed and perfoliate pondweed. Some sections of canal are tree-lined and here, the diversity of aquatic plants is lower, but may include important species such as floating water-plantain. Water plants, such as the invasive, non-native Canadian pondweed, and filamentous algae, which indicate nutrient enrichment, are scarce.*

*Aquatic invertebrates, especially those indicative of good water quality, such as dragonflies and damselflies and water beetles, are abundant along the canal. More than ten species of dragonflies and damselflies breed here.*

*On average there is a 1m wide strip of diverse marginal vegetation, which includes species such as meadowsweet, common skullcap, flowering rush, angelica, common valerian, greater tussock sedge and water dock. Reed sweet grass is confined to this 1m shelf and is not present in the central channel.*

*The populations of floating-water plantain and other regionally rare water plants are stable or increasing across the site as a whole. The population of grass-wrack pondweed is increasing to best historic levels. Populations of all of these plants are sustainable in the long term, their distribution along the canal is not contracting, sufficient habitat exists to support each one and the factors that may affect these plants or their habitats are all under control.*

*Alien aquatic and land-based species, such as Japanese knotweed, water fern, least duckweed and floating pennywort are absent from the canal.*

## **2. SITE DESCRIPTION**

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

Grid reference(s): SJ220058 SJ223060 SJ254203 SO169967 SO173970

Unitary authority: Powys

Area (hectares): 55.9

Designations covered: Montgomery Canal SAC and Montgomery Canal SSSI share exactly the same boundary.

Map 1 shows the coverage of this document.

### **2.2 Outline Description**

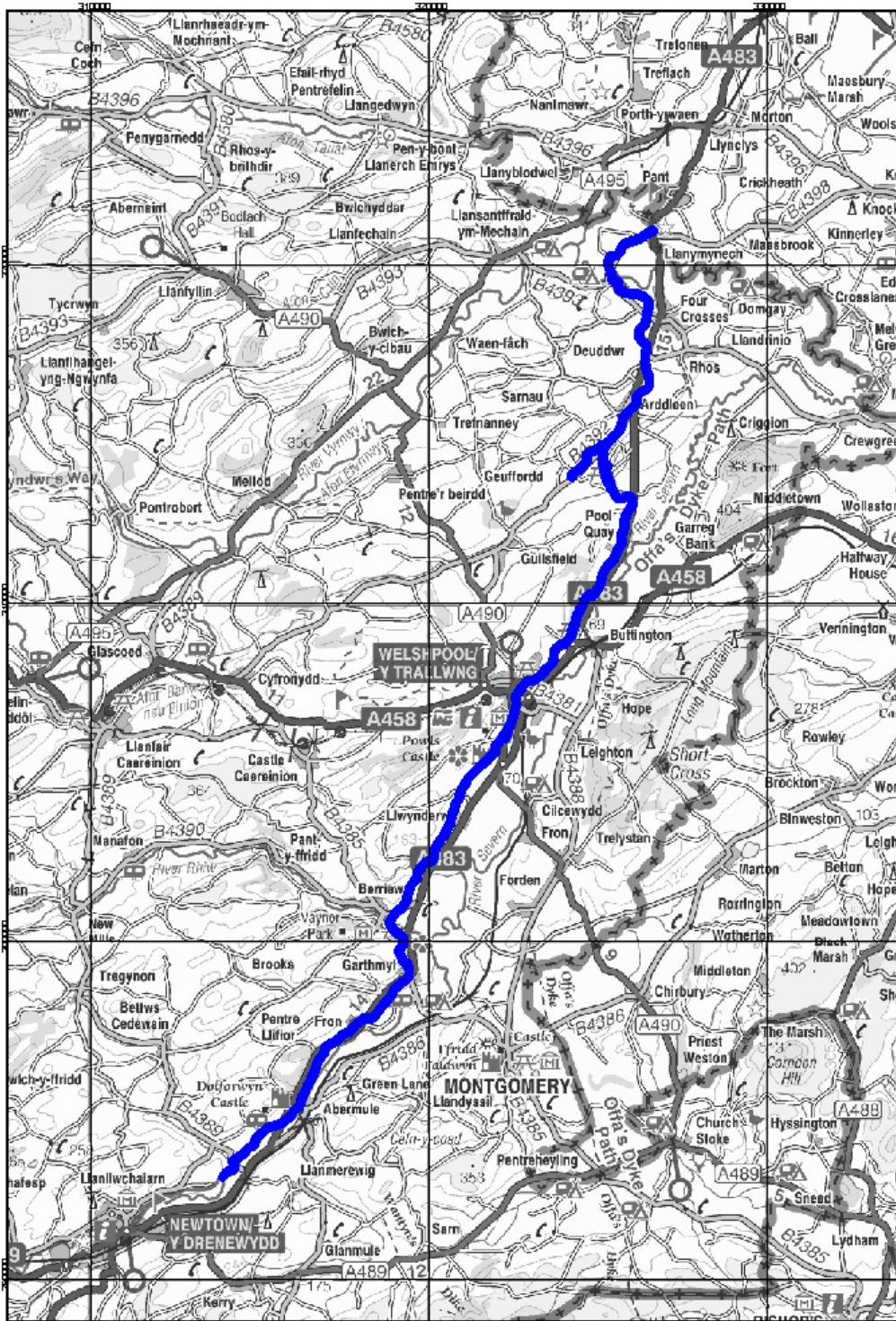
The Montgomery Canal is a partially restored but largely unused waterway. It runs for approximately 36 kilometres from near Aberbechan (three kilometres north-east of Newtown) to the English border at Llanymynech. It also has a small number of linked off-line reserves (kept as small individual management units); these were created to protect examples of the habitats and species found in the canal when restoration of the canal was started in the 1970s.

It supports the largest, most extensive population of floating water-plantain *Luronium natans* in lowland Britain. This is a semi-natural population, having colonised from drift material or seed but needing periodic human disturbance for continued growth; in this respect the canal is a substitute for the species' former slow-moving, mesotrophic river niche, which has been largely destroyed in lowland Britain.

The floating water-plantain is just one of a number of species of submerged, floating and marginal plant species that make up the canal habitat SSSI feature. This habitat is distributed along the entire length of the canal within the SSSI; the interest and quality varies from species-poor to species rich, depending a number of factors, including water depth and management frequency.

**MAP 1:**

# Montgomery Canal SAC & SSSI



Produced by CCW on: 15 November 2007

Scale 1:150000

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## 2.3 Outline of Past and Current Management

Originally the canal was a branch of the Shropshire Union Canal that was connected to the wider English Canal network. The Montgomery Canal in Wales was completed in the early 19<sup>th</sup> Century and was used to transport various products from this part of Wales. The canal was viable until the First World War, from when there was a gradual deterioration in maintenance and the canal was closed in 1936. Eventually the canal became the responsibility of the British Waterways Board and since the late 1970s there has been some restoration of the canal structure to create the site, as it currently exists.

More recently there has been limited boat traffic along the canal, centred on Welshpool, and British Waterways has maintained the canal through a programme of weed cutting and minor dredging to safeguard water supply and the habitat interests of the site. At present, the lack of funds means that it is difficult to maintain the ideal depth and width of open water over the entire canal that is required to support sustainable aquatic plant communities.

Following collaboration between a number of partners, a strategy for the sustainable restoration of the Montgomery Canal was published in 2005 (**Montgomery Canal Partnership 2005**). This sets out how the canal will be managed and all its various interests will be safeguarded as the canal is restored and connected to the wider canal network. CCW had considerable input into this document, which sets out the standards that will be applied to ensure that the nature conservation interests of the site are safeguarded. This has been used as the basis for the conservation objectives and performance indicators given in Section 4 of this plan.

## 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 distribution of the SAC feature and current management of the canal, which is all owned by British Waterways. The units are usually focussed on separating out those lengths where floating water-plantain is abundant, whilst other lengths currently have a low cover or frequency of this species. This has also taken into account the most recent available survey information available for the canal (Newbold 2001).

For a more detailed map of the management units please see accompanying Unit Map.

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

Unit Ref number	Unit Name	SAC	SSSI	CCW owned
1	Llanymynech to Carreghofa Lock	✓	✓	
2	Vynrwy Aqueduct to Pentrehelin	✓	✓	
3	Pentrehelin to Bell House	✓	✓	
4	Bell House to Red Bridge	✓	✓	
5	Guilsfield Arm	✓	✓	
6	Wern Reserve	✓	✓	
7	Red Bridge to Pool Quay	✓	✓	
8	Pool Quay to Buttington	✓	✓	
9	Welshpool	✓	✓	

10	Whitehouse Reserve	✓	✓	
11	Powis Castle to Berriew	✓	✓	
12	Brithdir Reserve	✓	✓	
13	Berriew to Garthmyl	✓	✓	
14	Garthmyl to Red House	✓	✓	
15	Red House to Glanhafren	✓	✓	
16	Glanhafren to Freestone Lock	✓	✓	

### 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>		
<b>Floating water-plantain</b> <i>Luronium natans</i>	EU Species Code: 1831	1
<i>SPA features</i>		
Not applicable		
<i>Ramsar features</i>		
Not applicable		

<b>SSSI features (there may be others)</b>		
Open Water (Canal) Habitat	Defined partly by some of the plants listed below	2
Assemblage of rare and scarce aquatic plants	Includes floating water plantain and grass-wrack pondweed	Not completed
Floating water-plantain	This is exactly the same as the SAC feature	1
Grass-wrack pondweed <i>Potamogeton compressus</i>	Regionally rare species	Not completed
Autumnal water-starwort <i>Callitriche hermaphroditica</i>	Regionally rare species	Not completed
Flat-stalked pondweed <i>Potamogeton friesii</i>	Regionally rare species	Not completed
Perfoliate pondweed <i>Potamogeton perfoliatus</i>	Regionally rare species	Not completed
Long-stalked pondweed <i>Potamogeton praelongus</i>	Regionally rare species	Not completed
Greater duckweed <i>Lemna polyrhiza</i>	Regionally rare species	Not completed
Assemblage of aquatic invertebrates	Regionally rare species	Not completed

#### 3.2 **Special Features and Management Units**

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

##### **Key Features**

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

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

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

#### Other Features

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

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

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

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

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

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

Montgomery Canal	Management unit Ref.								
	1	2	3	4	5	6	7	8	9
SAC	✓	✓	✓	✓	✓	✓	✓	✓	✓
SSSI	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>SAC features</b>									
1. Floating water-plantain	Sym	KS	KS	Sym	KS	KS	Sym	KS	KS
<b>SSSI features – incomplete</b>									
2. Open Water (Canal) Habitat	KH	KH	KH	KH	KH	KH	KH	KH	KH

Montgomery Canal	Management unit Ref.						
	10	11	12	13	14	15	16
SAC	✓	✓	✓	✓	✓	✓	✓
SSSI	✓	✓	✓	✓	✓	✓	✓
<b>SAC features</b>							
1. Floating water-plantain	KS	KS	KS	Sym	Sym	KS	KS
<b>SSSI features - incomplete</b>							
2. Open Water (Canal) Habitat	KH	KH	KH	KH	KH	KH	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 Monitoring<sup>1</sup>.

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

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

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<sup>11</sup> Web link: <http://www.jncc.gov.uk/page-2199>.

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**4.1 Conservation Objective for Feature 1:  
Floating water-plantain *Luronium natans* (EU Species Code: 1831)**

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**Vision for feature 1**

The vision for this feature is to maintain the extent and distribution of *L. natans* within the Montgomery Canal at favourable conservation status, where all of the following conditions are satisfied:

- The *L. natans* population in favourable condition will reflect the natural carrying capacity of the canal habitat and will be limited principally by species ability to spread or be relocated (vegetative or otherwise), the suitability of the rooting medium and competition between species as part of habitat succession.
- Recreation pressure, principally through boat movements and fisheries management, will not significantly affect the maintenance of the species, or its ability to disperse throughout the canal network and any associated off-line reserves.
- The ecological status of the water environment, including elements of water quality and physical habitat quality, will be sufficient to support the population of *L. natans* in favourable condition.
- All factors affecting the achievement of the above conditions are under control.

**Performance indicators for Feature 1**

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

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
A1. Extent of <i>L. natans</i>	The base-line area (measured from 2001 survey for mapped continuous stands only) is 1.5 hectares. The lower limit is set to allow for up to a 25% decline to allow for natural fluctuations or management activity (like dredging) necessary to restore open water conditions.  In reality this is too time-consuming to measure, so will usually be covered by monitoring distribution (A2), unless a new comprehensive mapping survey is completed.	<i>Upper limit:</i> None required. <i>Lower limit:</i> 1.1 ha
A2. Distribution of <i>L. natans</i>	This has been set to ensure the size of the population is safeguarded. It also provides a means of ensuring that the species can recolonise areas subject to dredging and weed cutting to maintain open water and water flow.  Note that some units are composed of a number of contiguous km lengths.  There are no recent records for this species in Units 4, 12 or 13, but at low density this species is very difficult to find.	<i>Upper Limit:</i> present along whole length of canal. <i>Lower limit:</i> Present in all non-navigable channel kms where it was found in 2001; AND present in 75% of samples and 75% of the mapped area in 2001 in Vyrnwy aqueduct.  <b>Also present in</b> offline reserves at Wern, Guilsfield Arm, Whitehouse

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
	<p>Each offline reserve has also been treated as a separate unit.</p> <p>The performance indicator limits are over and above the minimum standards set by JNCC because the plant is so widespread along the canal.</p>	<p>and Brithdir Pools.</p> <p>Also requires evidence of spreading by runners, and spreading around site by fragments</p>

<b>Performance indicators for factors affecting the feature</b>		
<b>Factor</b>	<b>Factor rationale and other comments</b>	<b>Operational Limits</b>
<b>F1. Water Quality</b>	<p>The water determines the quality of the habitat and plant community in which this species grows. These standards are higher than may be required for this species to safeguard the SSSI feature.</p> <p>It is recognised that these standards may be replaced by better standards more specific to canals as and when they become available.</p> <p>The standard will only be failed if failure is sustained and is for criteria wider than biochemical oxygen demand and dissolved oxygen.</p> <p>There should be no deterioration from existing levels.</p> <p>These targets should be replaced by experience of the existing data available from the Environment Agency or emerging Water Framework Directive targets over the coming years.</p>	<p><i>Upper limit:</i> As an interim guide the total phosphorus target for the whole canal is &lt;40µg L<sup>-1</sup> TP. None required for other elements.</p> <p><i>Lower limit:</i> The current target is to seek to attain General Quality Assessment Grade A or B for biological water quality, and General Quality Assessment Grade B for water chemical quality.</p>
<b>F2. Water Clarity</b>	<p>It is considered essential to use a Secchi disk because observation alone cannot be a reliable measure of light penetration.</p> <p>This should not be measured during or after periods of heavy rain.</p>	<p><i>Upper limit:</i> not required</p> <p><i>Lower limit;</i> Secchi disk should be visible at depth of 1m in 90% of observations</p>

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## **4.2 Conservation Objective for Feature 2: Open Water (Canal) Habitat**

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### **Vision for feature 2**

The vision for this feature is to maintain the extent, distribution and quality of the floating, submerged, emergent and marginal vegetation that constitutes the canal vegetation habitat feature within the Montgomery Canal at favourable conservation status, where all of the following conditions are satisfied:

- The canal vegetation in favourable condition will reflect the natural carrying capacity of the canal habitat and will be limited principally by species ability to spread or be relocated (vegetative or otherwise), the suitability of the rooting medium and competition between species as part of habitat succession.
- The ecological status of the water environment, including elements of water quality, depth and clarity, will be sufficient to support species-rich canal vegetation with a variety of submerged, floating and marginal species and the populations of locally rare or uncommon species in favourable condition.
- Recreation pressure, principally through boat movements and fisheries management, will not significantly affect the maintenance of the canal vegetation, or its ability to disperse throughout the canal network and any associated off-line reserves.
- All factors affecting the achievement of the above 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.

<i>Performance indicators for feature condition</i>		
<i>Attribute</i>	<i>Attribute rationale and other comments</i>	<i>Specified limits</i>
<b>A1.</b> Extent of Canal Vegetation	<p>Lower limit is same as upper limit because the whole canal should support canal vegetation of some description.</p> <p>This can be assessed on the basis of all areas being maintained as open water, but allowing for the fact that once over a certain proportion of the channel is dominated by marginal species then a need for dredging will be required. This will effectively be delivered by the performance indicator- A2.</p>	<p><i>Upper limit:</i> 37.5 ha, as limited by available open water habitat.</p> <p><i>Lower limit:</i> 37.5 ha</p>
<b>A2.</b> Canal Vegetation – <b>Quantity And Distribution</b>	<p>Based on the JNCC Standard <b>Common Standards Monitoring</b> guidance for this attribute for this feature.</p> <p>This should be assessed for individual kilometre lengths.</p>	<p><i>Upper limit:</i> No more that 70% of the channel width should be covered by marginal vegetation</p> <p><i>Lower limit:</i> Submerged and floating leaved aquatics should cover at least 30% of the canal channel, AND Marginal (emergent) should cover at least 30% of channel width.</p>
<b>A3.</b> Canal Vegetation – <b>Species Richness</b>	<p>Based on the JNCC Standard <b>Common Standards Monitoring</b> guidance for this attribute for this feature. It has been modified according to site-specific requirements to allow for a rotational programme of canal maintenance (dredging &amp; weed cutting), so that not all kilometres lengths have to meet the standard at any one time. This maintenance is to ensure optimal conditions of open water are maintained for the canal habitat and species.</p> <p>The performance standards have been set on the basis of monitoring fixed kilometre lengths, but the management units in this plan may be composed of more than one kilometre length.</p> <p>The list of species that qualify as aquatic or emergent is site specific. <i>Elodea</i> or</p>	<p><i>Upper limit:</i> Not required</p> <p><i>Lower limit:</i> 75% of the Canal Vegetation is ‘species-rich’ canal vegetation in good condition, characterised by the presence of:</p> <p>at least 6 <b>aquatic</b> and 6 <b>emergent</b> species at DAFOR level Occasional in every 1km of channel,;</p> <p>AND</p> <p>an average of 7 <b>aquatic</b> and 7 <b>emergent</b> species per 150 metre sample over full channel length.</p>

	<p>other alien species do not count as aquatic species for this assessment.</p> <p>The different figure for the average is to allow some lengths to be far more species rich than others. According the JNCC guidance this is the number of species to be expected in good quality canal vegetation within a 150m sample unit. It is possible that this is over ambitious for this site.</p>																															
<b>A4. Canal Vegetation – Introduced Species</b>	Other species may be added to list if the need arises.	<p><i>Upper limit:</i> Each of <i>Azolla</i> spp., <i>Crassula helmsii</i>, <i>Hydrocotyle ranunculoides</i> and <i>Myriophyllum aquaticum</i> occupy less than 50 m of the whole designated site; AND None of these invasive species should be present at DAFOR cover more than Rare in any 150 m survey site. <i>Lower limit:</i> none required</p>																														
<b>A5. Canal Vegetation – negative indicator species</b>	Failure is unlikely on this attribute alone, but it will be monitored.	<p><i>Upper limit:</i> Filamentous algae and combined cover of <i>Spirodella</i> /<i>Lemna</i>/<i>Azolla</i>, each less than 10% cover on average <i>Lower limit:</i> none required</p>																														
<b>A6. Indicators of local distinctiveness:</b>	<p>Populations of rare species and other species characteristic of high quality canal systems should persist.</p> <p>The continued presence of populations should be checked during section surveys.</p>	<p><i>Upper limit:</i> none required</p> <p><i>Lower limit:</i> the following species populations should be maintained in the following number of kilometre lengths.</p> <table> <tr><td><i>Alisma lanceolatum</i></td><td>4</td></tr> <tr><td><i>Butomus umbellatus</i></td><td>1</td></tr> <tr><td><i>Callitriche hamulata</i></td><td>7</td></tr> <tr><td><b><i>Callitriche hermaphroditica</i></b></td><td><b>5</b></td></tr> <tr><td><i>Carex acutiformis</i></td><td>9</td></tr> <tr><td><i>Hottonia palustris</i></td><td>2</td></tr> <tr><td><i>Hydrocharis morsus-ranae</i></td><td>10</td></tr> <tr><td><i>Myriophyllum alterniflorum</i></td><td>10</td></tr> <tr><td><i>Potamogeton alpinus</i></td><td>2</td></tr> <tr><td><i>Potamogeton crispus</i></td><td>6</td></tr> <tr><td><i>Potamogeton friesii</i></td><td>2</td></tr> <tr><td><i>Potamogeton obtusifolius</i></td><td>24</td></tr> <tr><td><b><i>Potamogeton perfoliatus</i></b></td><td><b>4</b></td></tr> <tr><td><b><i>Potamogeton praelongus</i></b></td><td><b>2</b></td></tr> <tr><td><b><i>Spirodela polyrhiza</i></b></td><td><b>2</b></td></tr> </table>	<i>Alisma lanceolatum</i>	4	<i>Butomus umbellatus</i>	1	<i>Callitriche hamulata</i>	7	<b><i>Callitriche hermaphroditica</i></b>	<b>5</b>	<i>Carex acutiformis</i>	9	<i>Hottonia palustris</i>	2	<i>Hydrocharis morsus-ranae</i>	10	<i>Myriophyllum alterniflorum</i>	10	<i>Potamogeton alpinus</i>	2	<i>Potamogeton crispus</i>	6	<i>Potamogeton friesii</i>	2	<i>Potamogeton obtusifolius</i>	24	<b><i>Potamogeton perfoliatus</i></b>	<b>4</b>	<b><i>Potamogeton praelongus</i></b>	<b>2</b>	<b><i>Spirodela polyrhiza</i></b>	<b>2</b>
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<b><i>Spirodela polyrhiza</i></b>	<b>2</b>																															

<i>Performance indicators for factors affecting the feature</i>		
<i>Factor</i>	<i>Factor rationale and other comments</i>	<i>Operational Limits</i>
<b>F1.</b> Water Quality		These are exactly the same as for Feature 1.
<b>F2.</b> Water Clarity	This is assessed by looking at water clarity. It is considered essential to use a Secchi disk because observation alone cannot be a reliable measure of light penetration	This is exactly the same as for Feature 1.
<b>F3.</b> Channel shading	Tree and hedgerow maintenance can affect the amount of light getting to the water surface. This in turn can affect the quality of the habitat.  In parts of the site supporting significant populations of <i>L. natans</i> this would not apply as the priority is to safeguard the SAC feature.	<i>Upper Limit:</i> On average no more than 5% of the channel surface should be shaded by overhanging vegetation in each km length.  <i>Lower Limit:</i> not required

## **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: Floating water-plantain *Luronium natans* (EU Species Code: 1831)**

#### **Conservation Status within the site of Feature 1**

Results of the most comprehensive survey in 2001 (Newbold 2001) showed that this species is widespread along the length of the canal, although there are some lengths where there are no records because of its very low density, recent dredging activity or its local absence. This information had led CCW to conclude that the population was healthy and that this should warrant an assessment of favourable condition.

However, there are concerns about water quality that may account for the current lack of species-richness in some parts of the canal. Whilst this may be of lesser concern for this feature the status of this feature has been currently assessed as **unfavourable (2007)**, pending further discussion and investigation with the Environment Agency (February 2006). This assessment has not been done for each management unit.

Some areas are dominated by *Elodea* spp, which can out compete the more sensitive species (including *L. natans*).

It can be stated with certainty (November 2007) that the population of this feature is currently large and abundant in management units 2 (Vyrnwy Aqueduct to Pentrehelin) and 15 (Red House to Glanhafren).



## Management Requirements of Feature 1

November 2007

- **Dredging** – Silting up means that shallow water and competing marginal species restrict the availability of open water and early successional conditions that this species requires to thrive.

British Waterways are mindful of their responsibilities on this site and work in partnership with CCW to ensure that existing populations are safeguarded during any works that are necessary to maintain water flows and physical structure of the canal.

New funding sources for proper dredging are continually being sought, and it is hoped that a focussed and sustainable restoration to a controlled but navigated waterway would provide the means to safeguard the future of the site and this feature.

- **Water quality** – There concerns about the quality of the water that feeds into the canal. This is currently being investigated by the Environment Agency as part of their review of consents process.

It is possible that once proper dredging can occur that this may improve water flow and help to improve quality by removing a nutrient source.

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## 5.2 Conservation Status and Management Requirements of Feature 2: Canal Vegetation

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### Conservation Status within the site of Feature 2

Results of the most comprehensive survey in 2001 (Newbold 2001) showed that species richness was very variable, although the data has only been analysed to assess richness per kilometre. Some lengths have a high number of species, but there are many kilometres (18) that have 3 species of aquatics or less. This information had led CCW to conclude that this feature is currently in unfavourable, unclassified condition.

More recent feature monitoring in 2005 (report currently not available) was done on a sample of seven separate kilometre lengths selected as representative of conditions along the length of the canal. Of those sites, only two passed the threshold for number of aquatic species; these equated to management units 2 and 10, which are already known to be the most species-rich areas on the canal.

There are clearly issues over species richness. Much of this is probably due to shallow water depths and siltation because there is insufficient funding for a proper dredging programme. This means that some areas are dominated by vigorous marginal species like *Glyceria maxima*. Some areas are dominated by *Elodea* spp, which can out compete the more sensitive species (including *L. natans*).

There are also concerns about water quality (mentioned for Feature 1) that may account for the current lack of species-richness in some parts of the canal.

The status of this feature has been currently assessed as **unfavourable (2007)**. British Waterways need to be able to access sufficient funds to plan for a proper programme of dredging with arisings being removed off site. The concerns over water quality are pending further discussion and investigation with the Environment Agency (February 2006). This assessment has not been done for each management unit.

## Management Requirements of Feature 2

November 2007

- **Dredging** – Silting up means that shallow water and competing marginal species restrict the availability of open water and early successional conditions that this species requires to thrive. British Waterways are mindful of their responsibilities on this site and work in partnership with CCW to ensure that existing populations are safeguarded during any works that are necessary to maintain water flows and physical structure of the canal.

New funding sources for proper dredging are continually being sought, and it is hoped that a focussed and sustainable restoration to a controlled but navigated waterway would provide the means to safeguard the future of the site and this feature.

There is insufficient information available to say which units currently require management action to create sufficiently deep and open water to permit species-rich vegetation to develop, but data from 2001 suggests that at present there is no need for action in management units 2, and 8 to 12, although south of Llwynderw (km 22) towards Berriew and beyond (km26) all but one individual kilometre lengths have fewer than 6 aquatic species.

- **Water quality** – There are concerns about the quality of the water that feeds into the canal. This is currently being investigated by the Environment Agency as part of their review of consents process.

It is possible that once proper dredging can occur that this may improve water flow and help to improve quality by removing a nutrient source.

## **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.

<b>Unit Number</b>	<b>CCW Database Number</b>	<b>Unit Name</b>	<b>Summary of Conservation Management Issues</b>	<b>Action needed?</b>
001	000063	Llanymynech to Carreghofa Lock	Concerns over water quality which needs investigation. Also, the lack of money available to fund a dredging programme to provide a more sustainable water depth for the habitat and species features.	Yes
002	000068	Vyrnwy Aqueduct to Pentrehelin	Concerns over water quality which needs investigation. Also, the lack of money available to fund a dredging programme to provide a more sustainable water depth for the habitat and species features.	Yes
003	000069	Pentrehelin to Bell House	Concerns over water quality which needs investigation. Also, the lack of money available to fund a dredging programme to provide a more sustainable water depth for the habitat and species features.	Yes

<b>Unit Number</b>	<b>CCW Database Number</b>	<b>Unit Name</b>	<b>Summary of Conservation Management Issues</b>	<b>Action needed?</b>
004	000070	Bell House to Red Bridge	Concerns over water quality which needs investigation. Also, the lack of money available to fund a dredging programme to provide a more sustainable water depth for the habitat and species features.	Yes
005	000071	Guilsfield Arm	Concerns over water quality which needs investigation. Also, the lack of money available to fund a dredging programme to provide a more sustainable water depth for the habitat and species features.	Yes
006	000072	Wern Reserve	Concerns over water quality which needs investigation.	Yes
007	000073	Red Bridge to Pool Quay	Concerns over water quality which needs investigation. Also, the lack of money available to fund a dredging programme to provide a more sustainable water depth for the habitat and species features.	Yes
008	000074	Pool Quay to Buttington	Concerns over water quality which needs investigation. Also, the lack of money available to fund a dredging programme to provide a more sustainable water depth for the habitat and species features.	Yes
009	000075	Welshpool	Concerns over water quality which needs investigation. Also, the lack of money available to fund a dredging programme to provide a more sustainable water depth for the habitat and species features.	Yes
010	000076	Whitehouse Reserve	Concerns over water quality which needs investigation. Also, the lack of money available to fund a dredging programme to provide a more sustainable water depth for the habitat and species features.	Yes
011	000077	Powis Castle to Berriew	Concerns over water quality which needs investigation. Also, the lack of money available to fund a dredging programme to provide a more sustainable water depth for the habitat and species features.	Yes
012	000078	Brithdir Reserve	Concerns over water quality which needs investigation.	Yes
013	000079	Berriew to Garthmyl	Concerns over water quality which needs investigation. Also, the lack of money available to fund a dredging programme to provide a more sustainable water depth for the habitat and species features.	Yes
014	000080	Garthmyl to Red House	Concerns over water quality which needs investigation. Also, the lack of money available to fund a dredging programme to provide a more sustainable water depth for the habitat and species features.	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
015	000081	Red House to Glanhafren	Concerns over water quality which needs investigation. Also, the lack of money available to fund a dredging programme to provide a more sustainable water depth for the habitat and species features.	Yes
016	000082	Glanhafren to Freestone Lock	Concerns over water quality which needs investigation. Also, the lack of money available to fund a dredging programme to provide a more sustainable water depth for the habitat and species features.	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.

<b>Action</b>	A recognisable and individually described act, undertaking or <b>project</b> of any kind, specified in section 6 of a <b>Core Management Plan</b> or <b>Management Plan</b> , as being required for the <b>conservation management</b> of a site.
<b>Aquatic species</b>	A species of floating leaved or submerged plant, as defined on a list given by JNCC <sup>2</sup> for canal feature monitoring.
<b>Attribute</b>	A quantifiable and monitorable characteristic of a <b>feature</b> that, in combination with other such attributes, describes its <b>condition</b> .
<b>Common Standards Monitoring</b>	A set of principles developed jointly by the UK conservation agencies to help ensure a consistent approach to <b>monitoring</b> and reporting on the <b>features</b> of sites designated for nature conservation, supported by guidance on identification of <b>attributes</b> and monitoring methodologies.
<b>Condition</b>	A description of the state of a feature in terms of qualities or <b>attributes</b> 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.
<b>Condition assessment</b>	The process of characterising the <b>condition</b> of a <b>feature</b> with particular reference to whether the aspirations for its condition, as expressed in its <b>conservation objective</b> , are being met.
<b>Condition categories</b>	The <b>condition</b> of <b>feature</b> can be categorised, following <b>condition assessment</b> as one of the following <sup>3</sup> : Favourable: maintained; Favourable: recovered; Favourable: unclassified; Unfavourable: recovering; Unfavourable: no change;

<sup>2</sup> See JNCC guidance on Common Standards Monitoring <http://www.jncc.gov.uk/page-2232>

	Unfavourable: declining; Unfavourable: un-classified; Partially destroyed; Destroyed.
<b>Conservation management</b>	Acts or undertaking of all kinds, including but not necessarily limited to <b>actions</b> , taken with the aim of achieving the <b>conservation objectives</b> 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.
<b>Conservation objective</b>	The expression of the desired <b>conservation status</b> of a <b>feature</b> , expressed as a <b>vision for the feature</b> and a series of <b>performance indicators</b> . The conservation objective for a feature is thus a composite statement, and each feature has one conservation objective.
<b>Conservation status</b>	A description of the state of a <b>feature</b> that comprises both its <b>condition</b> and the state of the <b>factors</b> affecting or likely to affect it. Conservation status is thus a characterisation of both the current state of a feature and its future prospects.
<b>Conservation status assessment</b>	The process of characterising the <b>conservation status</b> of a <b>feature</b> with particular reference to whether the aspirations for it, as expressed in its <b>conservation objective</b> , 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 <b>conservation management</b> , lies mainly in the details of the assessment of feature <b>condition</b> , <b>factors</b> and trend information derived from comparisons between current and previous conservation status assessments and condition assessments.
<b>Core Management Plan</b>	A CCW document containing the conservation objectives for a site and a summary of other information contained in a full site <b>Management Plan</b> .
<b>Emergent species</b>	A species of floating or submerged plant, as defined on a list given by JNCC <sup>4</sup> for canal feature monitoring.
<b>Factor</b>	Anything that has influenced, is influencing or may influence the <b>condition</b> of a <b>feature</b> . 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 <b>conservation management</b> can also be considered as factors.
<b>Favourable condition</b>	See <b>condition</b> and <b>condition assessment</b>
<b>Favourable conservation status</b>	See <b>conservation status</b> and <b>conservation status assessment</b> . <sup>5</sup>
<b>Feature</b>	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.
<b>Integrity</b>	See <b>site integrity</b>

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<sup>3</sup> See JNCC guidance on Common Standards Monitoring <http://www.jncc.gov.uk/page-2272>

<sup>4</sup> See JNCC guidance on Common Standards Monitoring <http://www.jncc.gov.uk/page-2232>

<sup>5</sup> A full definition of favourable conservation status is given in Section 4.

<b>Key Feature</b>	The habitat or species population within a <b>management unit</b> that is the primary focus of <b>conservation management</b> and <b>monitoring</b> in that unit.
<b>Management Plan</b>	The full expression of a designated site's legal status, <b>vision, features, conservation objectives, performance indicators</b> 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 <b>the Core Management Plan</b> ) and sets of electronically stored information.
<b>Management Unit</b>	An area within a site, defined according to one or more of a range of criteria, such as topography, location of <b>features</b> , tenure, patterns of land/sea use. The key characteristic of management units is to reflect the spatial scale at which <b>conservation management</b> and <b>monitoring</b> 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.
<b>Monitoring</b>	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 <b>Common Standards Monitoring</b> , the formulated standard is the quantified expression of favourable <b>condition</b> based on <b>attributes</b> .
<b>Operational limits</b>	The levels or values within which a <b>factor</b> is considered to be acceptable in terms of its influence on a <b>feature</b> . 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.
<b>Performance indicators</b>	The <b>attributes</b> and their associated <b>specified limits</b> , together with <b>factors</b> and their associated <b>operational limits</b> , which provide the standard against which information from <b>monitoring</b> and other sources is used to determine the degree to which the <b>conservation objectives</b> for a <b>feature</b> are being met. Performance indicators are part of, not the same as, conservation objectives. See also <b>vision for the feature</b> .
<b>Plan or project</b>	<b>Plan:</b> a document prepared or adopted by a public body or statutory undertaker, intended to influence decisions on the carrying out of <b>projects</b> .  <b>Project:</b> 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. Decisions on plans and projects which affect Natura 2000 and Ramsar sites are subject to specific legal and policy procedures.
<b>Site integrity</b>	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.
<b>Site Management Statement (SMS)</b>	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.
<b>Special Feature Specified limit</b>	See <b>feature</b> . The levels or values for an <b>attribute</b> which define the degree to which the attribute can fluctuate without creating cause for concern about the <b>condition</b> of the <b>feature</b> . 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.
<b>Unit</b>	See <b>management unit</b> .
<b>Vision for the feature</b>	The expression, within a <b>conservation objective</b> , of the aspirations for the <b>feature</b> concerned. See also <b>performance indicators</b> .
<b>Vision Statement</b>	The statement conveying an impression of the whole site in the state that is intended to be the product of its <b>conservation management</b> . A 'pen portrait' outlining the <b>conditions</b> that should prevail when all the <b>conservation objectives</b> are met. A description of the site as it would be when all the <b>features</b> are in <b>favourable condition</b> .

## **8. REFERENCES**

### **References**

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