CALDERDALE'S NATURAL HERITAGE

A Biodiversity Action Plan for Calderdale

2003 - 2010

Biodiversity

"Biodiversity is the variety of life on earth; the plants and animals and the habitats in which they live. It ranges in scale from microscopic bacteria to huge whales. Biodiversity is not just the rare or exotic but also the everyday and commonplace; it is the birds in our garden as well as the tigers in the rainforest."

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Version 1.3 February 2007
Version 1.4 November 2007 Appendix 2 – amended contact details
River, Urban and Ancient Trees Habitat Action Plans added

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1. BIODIVERSITY IN CALDERDALE

1.1 Introduction

In 1992 the leaders from over 150 countries met in Rio de Janeiro. They met to discuss growing environmental concerns arising from the recognition that our lifestyles are destroying the natural processes on which we depend, such as the air we breathe, the water we drink and the food we eat. Several important resolutions arose from this Summit meeting; the main theme emerging was the need for sustainable development with protection of the environment as an integral part.

The convention on Biological Diversity, signed by 153 countries at Rio, is seen as a major step in achieving sustainability and emphasises that conservation of biodiversity needs to be at the heart of the policies which drive our economy.

The Government published a report ***Biodiversity, the UK Action Plan*** in 1994 that set out 59 steps to be taken to secure biodiversity in the UK, including the setting up of a Steering Group to write a national action plan. ***Biodiversity, the UK Steering Group's Report: Meeting the Rio Challenge*** was published in December 1995 and was endorsed by the Government in May 1996. That report, with its targets and actions, forms the basis for the Biodiversity Action Plan (BAP) for Calderdale.

In 2001 the first draft of Calderdale's Natural Heritage was produced. This version represents a revision and includes action plans for 5 Priority Habitats and 3 Priority Species.

1.2 What is Biodiversity?

Biodiversity is a term that became popular after the Rio Summit. It simply means the variety of life that exists on the Earth in its various habitats, and the complex relationships which occur between the various species. This includes us.

1.3 Why Maintain Biodiversity?

The variety of species and their inter-relationships form a critical part of the natural processes, which give us clean air and water and provide the basis for many of our resources.

It has been found that small, seemingly unimportant species have a critical role to play in the health of natural and managed habitats, including those within the urban landscape. For example, certain fungi and small soil organisms play a major role in keeping woodlands alive by breaking down dead plant material into its constituent parts and recycling it to living plants as food.

This variety of life is important in enabling the environment to recover from catastrophes such as those caused by pollution. The more species involved in any system, natural or managed, the less chance there is of them all being wiped out by any severe disturbance to that system. This allows continuity of the vital processes necessary to sustain life.

Everything in life is interdependent on other species and we all live in balance with each other. If one species tips the balance, and this includes us, natural processes will be affected and will not be able to function properly or adjust to the change. This is why it is so important to maintain biodiversity - even the smallest creature has a role to play in life.

1.4 Why have a Local Biodiversity Action Plan for Calderdale?

Because all components of our wildlife are dependent upon each other in order to survive, the conservation of biodiversity needs to be tackled at different levels:
- *Internationally* - this involves co-ordinating action to ensure that migratory species continue to have access to sites providing food and shelter.
- *Nationally* - aim to maintain species that are not common in other countries.
- *Locally* - without local conservation none of the international or national objectives can happen, although local BAPs also aim to protect species that are locally important and distinctive.

The Government is very committed to conserving biodiversity. Local BAPs will provide a major contribution to the delivery of the national targets, because ultimately it is at the local level that habitats and species are lost or conserved.

Calderdale Council's Countryside and Forestry Unit has taken the lead in co-ordinating the production and implementation of a BAP for Calderdale. Meetings were held in 1999 and 2002 to bring together individuals and organisations concerned about Calderdale's wildlife declines and committed to take action. As a result, there is widespread support for the production and implementation of a BAP for Calderdale.

The underlying principles of the Calderdale Biodiversity Action Plan are:
- implementation of the UK Action Plan in Calderdale
- protection of key habitats and the species which inhabit them
- identification of conservation priorities, since focussed action is needed if we are to address declines of wildlife
- targets that clearly identify what we are trying to achieve
- clear actions that identify the steps we need to take to meet the targets
- shared knowledge, because no one person or group has all the answers
- precaution, because the environment is a very complex system and we must be wary of tinkering with a system of which we have insufficient knowledge
- surveying and monitoring to ensure that our actions will be the right actions to protect and enhance the environment
- partnership and co-operation, because together we can make a difference

Only through every individual and every sector of society acknowledging our responsibility will we achieve our goal, which is to hand on to our children a world that is no poorer than the one we inherited ourselves. This fits in closely with the Local Agenda 21

process in which individual and community actions can contribute to a sustainable lifestyle in which the retention of biodiversity is an integral part of the process.

1.5 What makes Calderdale special?

Calderdale has a large and diverse array of habitats and, consequently, of species which inhabit them. Indeed, it has often been said that the only feature the district lacks is a stretch of coastline. Biodiversity is all about this variety and is therefore especially relevant to the Calderdale district and its inhabitants. Although lucky in having this variety, it is essential that plans be put in place to safeguard its well being and continued diversity. Many important habitats are under threat from various pressures, with even our large expanses of upland moors not being immune. These are of international importance for their range and numbers of breeding birds which is recognised in that a large proportion has been designated as a Site of Special Scientific Interest (SSSI), Special Protection Area (SPA) and candidate Special Area of Conservation (SAC).

Because Calderdale is a hilly area with the main communication routes through narrow steep-sided valleys, there is an overall misconception that the district is well wooded. In fact, the opposite is true with only 3% of Calderdale being tree-covered - well below the national average. This places great importance on the woods we do have, especially the small clough woodlands which hold valuable remnants of woodland plant and animal communities. There may be no 'natural' lakes in the district but there are many reservoirs and old mill dams which can and do fulfil the function. These are important refuges for many species to maintain a foothold in the area but in many cases are vulnerable to development or neglect.

All these habitats, and others, are linked by a common factor, they are subject to increasing pressures from growing populations, industry and fragmentation - they are all in danger. This makes even small patches of wild or unmanaged land of special value - a rush field, a disused farm pond, an undeveloped patch of 'wasteland' - all can play a part in enhancing and maintaining the biodiversity of Calderdale.

1.6 What are the main threats to species and habitats?

- loss or damage to long established habitats causing further fragmentation
- neglect or inappropriate management of key habitats
- natural succession eg scrub invasion of wetlands and bogs
- loss of habitat due to developments such as road building, housing, industrial developments, open-cast extraction of soft and hard rock
- inappropriate use of areas for amenity use
- over-intensively managed open spaces
- human impact and disturbance, litter, dumping, vandalism, erosion of moorland etc.
- planting of trees in inappropriate places
- intensive agricultural practices including drainage, river bank management, over grazing
- pollution of freshwater resources, including nitrate run-off

- contamination of groundwater from disused mines
- uncontrolled spread of introduced species such as Japanese knotweed and Himalayan balsam
- climatic change involving weather patterns, temperature increases and effects from ozone depletion
- lack of appropriate information or data on species and habitats.

1.7 Timescale of the Plan

Although most targets within the plan have been set for 2010, it cannot be over emphasised that the present plan is the beginning of a long process to protect and enhance Calderdale's biological diversity. Calderdale's Biodiversity Action Plan must be seen as an evolving programme in which details will be revised in response to new information and data. It should be stressed again that the present plan is only a first step towards conserving our wildlife and it is to be monitored and revised as further data and information become available. It is intended to add new Species and Habitat Action Plans to the BAP on an annual basis, and to conduct a comprehensive review of the entire BAP and to reassess priorities in 2010.

The plan co-ordinator welcomes all comments and suggestions, which will be considered in future revisions.

2. HABITAT ACTION PLANS

2.1 How the habitats were selected

In 2002 organisations with an overall perspective of Calderdale's wildlife were consulted. They were asked to identify the habitats most in need of conservation action. Regional habitat priorities were also identified eg. Scrub.

Factors that were considered were:

National importance
Value to threatened wildlife
Level of threat
Opportunity for action

As a result the following Priority Habitats were agreed:

Ancient trees * (Regional)
Blanket bog * (National)
Canals * (Regional)
Fens (National)
Flushes (Regional)
Hedgerows * (National)
Lowland mixed deciduous woodland * (National)
Ponds and lakes (National)
Reedbeds (National)
Rivers and streams * (Regional)
Scrub (Regional)
Unimproved grasslands * (Regional)
Upland heathland * (National)
Upland oakwood * (National)
Wet woodland * (National)
Urban - Brownfield Sites of Ecological Importance * (Regional)

Habitat Action Plans have been prepared for those marked with a '*'.

2.2 Format of the Habitat Action Plans

The format of the action plans closely follows that used by the UK BAP and adopted by several Local BAPs:

National

A description of the status of the habitat on a UK level.

Regional

A description of the status of the habitat on a regional level. The region may be the Yorkshire and Humber Region or a more appropriate area such as West Yorkshire or the South Pennines Natural Area.

Local

A description of the status of the habitat on a Calderdale level.

Current factors causing loss or decline

Those factors negatively affecting the habitat in Calderdale.

Current Action

Examples of actions that are being, or have recently been, performed.

Legal Status

A description of legislation affecting the habitat.

Priority Species

Those Calderdale Priority Species associated with the habitat.

Targets

Goals to maintain and enhance the habitat at a sustainable level by 2010. It is recognised that some of the targets are aspirational (such as to ensure that all wildlife sites are in an ecological favourable condition).

Actions

Specific actions that need to be taken to achieve the targets. It is recognised that funding will be needed to ensure the full delivery of several actions. For each action a Lead Partner is listed. This organisation will co-ordinate action and liaise with the other partners listed to ensure that the action is delivered.

Plan co-ordinator

A person, representing an organisation that will work with the BAP Co-ordinator to co-ordinate action and ensure that progress is made towards the delivery of the targets.

2.3 Ancient Trees

Introduction

The term ancient tree is one that is not capable of precise definition but it encompasses trees defined by three guiding principles, as stated by the Ancient Tree Forum:

- Trees of interest biologically because of their age, size or condition
- Trees in the ancient stage of their life (this may vary greatly e.g. birch trees might be considered ancient after 50 years, oaks after several centuries)
- Trees that are old relative to others of the same species in the area

Ancient trees are not necessarily those that are native to the UK (or the local area). Non-native species can be of equal or higher biodiversity and wildlife value.

An important feature of ancient trees is that they are often hollow or contain rotting heartwood. Dead and decaying wood are essential for many species, particularly saproxylic invertebrates such as wood-living beetles and many species of fungi. A wide range of bird species nest in tree cavities as do several bat species. Birds and bats are also more likely to find prey in and around ancient trees, as they are particularly rich in invertebrates. Lichens and other epiphytic plants also develop on ancient trees, as they tend to occur in conditions that are stable over long periods of time.

Ancient trees are less likely to be actively managed than in the past. Pollarding and coppicing practices, which tend to prolong life and allow trees to reach old age, are now much less common. Dead and decaying trees are more likely to be felled, due to modern concerns with health and safety and a desire to 'tidy up' the countryside.

Woodlands are often under threat from lack of appropriate management and this reduces the chance of individual ancient trees developing.

Current Status

National

Britain is an important landscape within Europe due to the number of ancient trees surviving. Their occurrence across Britain however is patchy, with some areas having many old trees and others few. They can occur in many habitats other than woodland, including hedgerows, churchyards, orchards, village greens and urban streets. The UKBAP has produced a habitat action plan for lowland wood pasture and parkland but there is no specific HAP for ancient trees. Some individual ancient trees may be covered by Tree Protection Orders, although these may not be sufficient to preserve them in their ideal condition as the presence of deadwood and rot – essential to the ancient tree invertebrate fauna - may breach safety considerations.

Regional

West Yorkshire is a heavily urbanised area with a high population density. There is little lowland wood pasture or parkland in the region, although the site opposite Wainsgait Chapel in Old Town has been reported as a possible instance. Even in relatively well-preserved parklands such as Knostell Priory, which includes areas of wood pasture, trees were used extensively in the 18th and 19th centuries for pitprops so few truly ancient trees exist.

Recent research has indicated that wood pasture may also exist in the in-bye areas between upland hay meadows and moorland. This may prove a valuable source of ancient tree records in West Yorkshire with its large areas of uplands. These areas have yet to be surveyed.

Local

Calderdale is a relatively green area within a heavily industrialized and urban West Yorkshire. However, less than 10% of the district is wooded and of this 50% is planted woodland rather than ancient/old growth. The oldest trees tend to be planted sycamores of roughly 200+ years old, although there are some ancient trees of other species, notably beech and lime.

Current factors causing loss or decline

- Lack of or inappropriate management – loss of pollarding and coppicing regimes, neglect, compaction of soil around trees
- Lack of appropriate management allowing shading of trees and premature loss of individuals
- Vandalism
- Lack of replacement trees – lack of appropriate replanting with locally sourced (genetically related) saplings
- Inappropriate management of hedgerows which does not allow standards to develop naturally
- Removal of dead wood and decaying trees for Health and Safety requirements or over tidying
- Die back– may be due to pollution and/or climate change
- Dutch elm disease – preventing complete regeneration of surviving elm butts

Current Action

The Tree Forum was recently formed as a local partnership to assist with actions for trees in Calderdale. They are involved with:

- The Woodland Trust and Ancient Tree Forum
- The Upper Calder Valley Woodland Group

The Woodland Trust and Ancient Tree Forum offers information and support on managing ancient trees and organises profile-raising events.
Further information can be found on their website:
http://www.woodland-trust.org.uk/ancient%2Dtree%2Dforum/

Natural England has recently published a guide for ancient trees entitled 'Veteran Trees Management Handbook' written by Helen Read. Information can be found at:
http://www.english-nature.org.uk/pubs/handbooks/upland.asp?id=6

Legal status

- Tree Preservation Orders – trees of amenity value
- SSSI, SEGI's, SAC's – some trees may be designated as they are located within these areas
- Town and Country Planning Act (1999) – trees with amenity value
- CRoW Act (2000) – protects some species e.g. bats that live in or on ancient trees

Priority Species associated with this habitat:

All nine of the bat species found in Calderdale use trees for roosting. Also green and lesser spotted woodpecker, redstart, invertebrates and lichens.

Targets

- Ensure all ancient trees are maintained in an ecologically favourable condition.
- Propagate and plant 15 potential ancient trees by 2010 using suitable sites and species.
- Ensure existing ancient trees are replaced
- Identify and protect 20 potential ancient trees by 2010.

Actions

Action	Lead Partner	Other partners
1. Policy and legislation		
Ensure that planning policies are in place to protect ancient trees and enforce as appropriate	CMBC (DPP)	CMBC (CS)
Consider the impact on ancient trees when assessing planning applications	CMBC (DC)	CMBC (CS)

Enforce TPOs as appropriate	CMBC (DC)	CMBC (CS)
Consider existing and potential ancient trees for TPO designation	CMBC (DC)	CMBC (CS)
Take opportunities through the planning system to restore or plant future ancient trees. Explore possibilities of long term management agreements	CMBC (DC)	CMBC (CS)
Ensure that SEGI criteria take account of ancient trees	WYE	CMBC (CS)
2. Site safeguard and management		
Produce and adopt a Tree Strategy to include policies for managing ancient trees.	CMBC (CS)	All
Ensure management prescriptions are suitable to individual trees, e.g. haloing (felling adjacent trees to favour one individual), pollarding, aeration, fencing, propping up, removal of competing trees, identification of future species surveys, stock control, footpath rerouting and use of wire cables	CMBC (CS)	Tree Forum
Implement management policies/plans	CMBC (CS)	
Assist and support applications for grant funding	CMBC (CS)	
Locate areas adjacent to existing sites of value and assess potential for expansion	CMBC (CS)	Tree Forum
Encourage the generation of future ancient trees through propagation using seeds of local provenance gathered from or near existing ancient trees, tree planting and natural regeneration	CMBC (CS)	Tree Forum Tree wardens
Maintain current numbers of ancient trees and encourage the planting of replacement trees with species of local provenance	CMBC (CS)	Tree Wardens
Introduce a Tree Wardening Scheme	CMBC (CS)	Friends of Calderdale, Tree Forum
Encourage landowners to plant (potential) and manage (existing) ancient trees in hedgerows	CMBC (CS)	Tree Forum
3. Research and monitoring		
Develop criteria to enable the identification	CMBC (CS)	HSS/Tree Forum

of ancient trees in Calderdale.		
Identify trees that have the potential to become ancient trees, particularly those of national, regional or local rarity	CMBC (CS)	HSS/Tree Forum
Survey and monitor ancient trees to establish the range of species associated with them	CMBC (CS)	HSS/Tree Forum
Survey ancient trees on a regular basis to establish health and stability	CMBC (CS)	Tree Forum Tree Wardens
Perform initial assessment to identify management options for individual trees. Produce a brief report for the landowner/manager of assessed trees	CMBC (CS)	Tree Forum Tree Wardens
Identify key areas for ancient trees	CMBC (CS)	HSS
Establish and maintain a database of ancient trees which records the attributes of each tree	CMBC (CS)	Tree Forum Tree wardens HSS, WYE
Identify ancient trees of historical value in parks	CMBC (Parks)	CMBC (CS), HSS, Tree Forum
Involve the public in the identification and monitoring of ancient trees. Design a survey form for the general public to report trees of interest.	Tree Forum Tree wardens	CMBC (CS)
4. Advisory		
Disseminate guidance leaflets and information packs on ancient tree management to owners/occupiers and policy makers	CMBC (CS)	Tree Forum
5. Communication and publicity		
Introduce a plaque scheme to record and raise awareness of ancient trees of local significance concentrating on those in public open spaces	CMBC (CS)	Tree Forum Tree wardens CMBC (Parks)
Raise awareness of the importance and management of ancient trees as a wildlife habitat e.g. through internet and mobile display boards.	CMBC (CS)	Tree Forum Tree wardens

Plan Co-ordinator

Richard Robertshaw, Countryside Service

2.4 Blanket Bog and Upland Heathland

Current Status

National

Blanket Bog

Blanket peat accumulates in response to the very slow rate at which plant material decomposes under conditions of waterlogging. The principal vegetation types are classified under the NVC system as M1, M2, M3, M15, M17, M18, M19, M20 and M25 together with their intermediates. Other communities, such as flush fen and swamp types, also form an integral part of the blanket bog landscape.

Many of the typical blanket mire species, such as cross-leaved heath *Erica tetralix*, deer grass *Trichophorum cespitosum*, cotton grass *Eriophorum* spp and several of the bog moss *Sphagnum* spp, occur throughout much of the range of the habitat, although their relative proportions vary across the country.

The presence, extent and type of surface patterning is another important feature of blanket bogs. This can range from a relatively smooth surface, with the only irregularities being those created by vegetation features, to the extreme patterning associated with the suites of bog pools and the intervening ridges. As with floristic composition, there would appear to be a relationship between geographical location and the nature of the surface pattern. In general, the intensity and complexity of patterning increases towards the north and the west.

Blanket Bog is a globally restricted peatland habitat confined to cool, wet, typically oceanic climates. It is, however, one of the most extensive semi-natural habitats in the UK, ranging from Devon to Shetland. An important assemblage of breeding birds is associated with blanket bog – golden plover *Pluvialis apricaria*, dunlin *Calidris alpina*, and meadow pipit *Anthus pratensis*.

There is an estimated 1.5 million ha in the UK with most in Scotland. A large proportion of the EC resource is found within the UK. Although most widespread in the wetter west and north, blanket bog also occurs in eastern upland areas.

Upland Heathland

Upland heathland is characterised by the presence of dwarf shrubs at a cover of at least 25%. Upland heathland in favourable condition is typically dominated by a range of dwarf shrubs such as heather *Calluna vulgaris*, bilberry *Vaccinium myrtillus*, crowberry *Empetrum nigrum*, bell heather *Erica cinerea* and in the south and west, western gorse *Ulex gallii*.

Wet heath is most commonly found in the north and the west. It should be dominated by mixtures of cross-leaved heath *Erica tetralix*, deergrass *Trichophorum cespitosum*, heather and purple moor-grass *Molinia caerulea*. High quality heath is usually structurally diverse, containing stands of vegetation with heather at different stages of growth.

An important assemblage of birds is associated with upland heath, including short-eared owl *Asio flammeus,* merlin *Falco columbarius*, hen harrier *Circus cyaneus*, red grouse *Lagopus*

lagopus and twite *Carduelis flavirostris.* Upland Heathland occurs widely on mineral soils and thin peats throughout the uplands and the moorlands of the UK. The total upland heath in the UK is estimated to be between 2 and 3 million ha, 260,000 ha of which is in England. Dwarf shrubs are thought to be of international importance because they are largely confined within Europe to the UK and the western seaboard of mainland Europe.

Regional

The Yorkshire and the Humber region has approximately 53,000ha of blanket bog (about 3.5% of the estimated UK coverage) and 76,000ha of upland heathland, about 28% of the English resource. This is restricted for the most part to the west of the region, with the notable exception of the North York Moors.

Local

Within Calderdale there is 2,178ha of blanket bog and 5,795ha of upland heathland. The majority of the blanket bog in this area is of the M20 and M25 NVC codes and it is restricted to the western upland areas.

Current Factors Causing Loss & Decline

- Over grazing of bog areas, particularly associated with stocking of the moors over winter. This causes trampling of bryophyte species, the encouragement of grazing resistant grass species and the loss of dwarf shrubs from the sward.
- Burning can get out of control, restricting some areas of heather cover and causing damage to ground nesting birds. Burning takes two forms on the moors in Calderdale. It is used as a form of land management on shooting estates and for agricultural management by graziers.
- Drainage grips cause the blanket bog to dry out with the resultant loss of bryophyte and dwarf shrub species.
- Past and present air pollution.

Current Action

- The majority of blanket bog and upland heathland within Calderdale lies within the South Pennines SSSIs, SPA and cSAC.
- Calderdale's UDP policies for the protection of the above sites.

Legal Status

- The majority of this habitat lies within the South Pennines SSSIs, SPA and cSAC and is subject to legislation covering protection and management.

Priority Species

The following Calderdale Priority species are associated with this habitat:

- Plants (bog pimpernel, bog rosemary, heath cudweed, stag's-horn clubmoss). Birds (red grouse, golden plover, dunlin, meadow pipit, short-eared owl, merlin, hen harrier, twite).

Targets

- Ensure that all wildlife sites are maintained in an ecologically favourable condition.
- Create or restore 100 ha of blanket bog and 200 ha of upland heathland by 2010.

Actions

Action	Lead Partner	Other partners
1. Policy and Legislation		
Ensure that UDP policies are in place to protect this habitat	CMBC (DP)	CMBC (CAFU)
Consider the impact on this habitat when assessing planning applications	CMBC (DC)	CMBC (CAFU)
Consider designation as SEGI/SSSI of further areas of these habitats	NE / WYE	CMBC(CAFU)
Enforce the Wildlife and Countryside Act (1981 as amended)	NE	CMBC (DP) and other S28G bodies
Take opportunities through the planning system to restore or create this habitat. Explore possibilities of long term management agreements	CMBC (DC)	CMBC (CAFU)
2. Site safeguard and management		
Prepare management plans for all wildlife sites	NE / WYE	CMBC(CAFU), UU,YW
Promote the uptake of Countryside Stewardship grant schemes on land that includes these habitats	FWAG	DEFRA, NE, WYE, CMBC(CAFU),UU, YW
3. Research and monitoring		
Collate information on all blanket bog / upland heathland sites within the district	WYE	NE, HSS, TNHS, UCWN, YWT, CMBC(CAFU)
Maintain records of survey work undertaken	WYE	CMBC(CAFU) NE

Perform surveys	NE	CMBC(CAFU), WYE
4. Advisory		
Inform landowners and managers about the best land management practices	NE	FWAG, CMBC(CAFU), UU, WYE, YW
5. Regional		
6. Communication and publicity		
Publicise achievements	NE	all other key partners
Raise awareness of the importance of this habitat	CMBC(CAFU)	ATC

Plan Co-ordinator

Paul Duncan, Natural England

2.5 Canals

Current Status

National

Canals are a diverse group of inland waterways constructed for navigational purposes. Most of the canal network in Britain was constructed in the 18th and early 19th centuries and enabled waterways to play a leading role in serving the country's transport needs during the Industrial Revolution, moving bulk loads of raw materials and finished good cheaply. Many canals fell into decline, particularly following World War II, and some fell into disuse. Over recent decades there has been a move from use of the waterways for freight distribution to use by pleasure craft and for other recreational purposes including angling, sport and informal recreational uses. Canals are now enjoying a renaissance in their leisure use with the recent restoration of once derelict or fragmented canals, including the Rochdale Canal.

British Waterways are the navigation authority for the canals in Calderdale and have obligations to maintain the canal to defined navigable standards. British Waterways has a corporate BAP with a target for more detailed BAPs to be written at a local level for all canals by 2005.

The canal network managed by British Waterways includes over 100 Sites of Special Scientific Interest and 1500 local wildlife sites. It is home to species of national and international importance and many that are rare elsewhere in the UK.

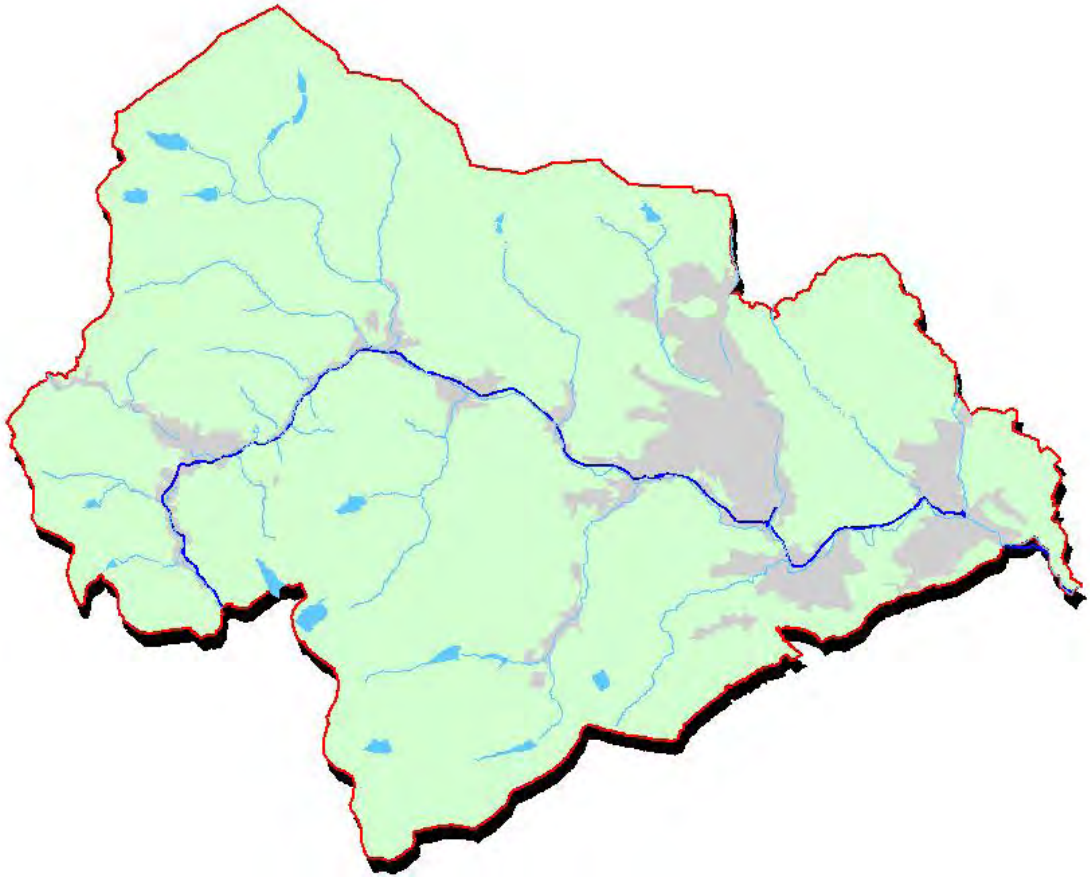
The canal and river corridors comprise a mosaic of habitats, providing a combination of terrestrial and freshwater habitats and often forming a 'green' corridor into urban areas. For the purposes of this plan only the canal and river channel and waterway bank habitats are taken onto consideration. However, in its corporate BAP, British Waterways recognise the following key habitats and land uses within the corridor; towpath verges, hedgerows, cuttings and embankments, built structures, feeders and streams, reedbeds, field margins, woodland and scrub and adjoining land. The management of habitats within the canal corridor must balance biodiversity requirements with the safety and needs of the canal users.

Regional

The Yorkshire and Humber region has a wide variety of canal types, from narrow trans-Pennine canals to industrial river navigations.

Local

In Calderdale there are two canals which join at Sowerby Bridge (Map 1). The canal to the east of Sowerby Bridge is the Calder and Hebble Navigation. This consists of a broad canal channel with short lock chambers to Brighouse, where it links with the River Calder. The navigation returns to a canal channel at Anchor Pit and crosses the Calderdale boundary at the M62. Waterways such as this, comprised in part of a canal channel and in part of a navigable river, are known as *river navigations.* The canal sections are man made channels excavated along the bottom of the Calder Valley in the 1770s.



There is also a vestige of the Halifax Arm of the Calder and Hebble Navigation, which left the main navigation at Salterhebble and linked the town centre of Halifax.

West of the Sowerby Bridge, the Rochdale Canal runs to the Calderdale boundary at Todmorden. The Rochdale Canal has undergone two phases of restoration. The first was carried out by Calderdale Council during the early 1990's. The second was completed during the summer of 2002, which completed the restoration of the South Pennine Ring. The Rochdale Oldham section of the canal was designated an SSSI/cSAC for its floating water plantain during 2001. Extensive ecological work was undertaken to ensure that this and other species were protected during the engineering work.

Recent survey work identified floating-leaved water plantain in the summit flight of the Rochdale Canal. This indicates a potential for the plant to be present in the Calderdale section of the canal. Future survey work will identify this.

The general character and construction of the canal channels is similar on both canals. However the surrounding landscapes and habitats range from formal and industrial urban settings to farmland and wooded cuttings.

The canal cuts trough a range of valuable riparian habitat including woodland and semi-improved grassland. The canal provides a corridor, which connects many of these areas.

Current factors causing loss or decline

Threats to the various habitats and species within the canal channel include:

- Pollution from surface water run-off, storm overflows, agrochemicals, mining and fertilisers leading to poor water quality
- Lack of, or inappropriate, habitat management.
- Poorly planned and executed engineering works to maintain the canal and associated structures eg dewatering the canal
- Unsympathetic dredging
- Siltation
- Shade from trees or buildings in some locations
- Erosion and disturbance of the canal banks by livestock and irresponsible anglers
- Development pressure eg boat moorings or changes in numbers of boat movements (both increases and decreases)
- The introduction and spread of invasive species such as signal crayfish, water fern, Japanese knotweed.

Current Action

- BW's BAP – this includes integration of targets into maintenance programmes
- Survey and monitoring by BW
- Training of BW staff
- Advice from professional ecologists with expertise in dealing with canal habitats
- Work to remove rubbish from the canal with volunteers
- Partnerships, eg Calder Future
- Pioneering work in neighbouring districts to mitigate against the negative effect of dredging on aquatic plants
- Education and events to interpret biodiversity of the canals to as wide an audience as possible
- The ATC's new 'Earthworks' (Biodiversity) project aims to promote, educate and raise awareness regarding biodiversity. This will be closely linked to the Rochdale Canal.

Legal Status

British Waterways are the navigation authority for the canal in Calderdale and are have statutory obligations to maintain the canal to defined navigable standards. The British Waterways Act 1995 also obliges BW to "*further the conservation of flora, fauna…of special interest*" in carrying out these duties and also to take into account the effect that any proposals relating to its functions have on the environment.

Policy N77 of the Calderdale Unitary Development Plan recognises the importance to protect the habitats in and around the Calderdale's canals.

The Rochdale Canal and the Calder and Hebble Navigation (between Salterhebble and Brighouse Basin) are designated as SEGIs by virtue of their value for plants and invertebrates.

Priority Species

The following Calderdale Priority Species are associated with this habitat:

- water shrew (unconfirmed)
- water vole
- otter (unconfirmed)
- amphibians
- fish - bullhead, grayling
- freshwater sponges
- white-clawed crayfish (unconfirmed)
- bats (eg pipistrelle, Daubenton's)
- water plants (eg floating water plantain, lesser skullcap, needle spike rush)
- molluscs
- butterflies & moths (eg the butterbur)
- birds (eg bullfinch, song thrush)

Targets

- Ensure that the canal is maintained in a good condition for wildlife
- Restore 2 km of degraded habitats by 2010
- Create 2 km of new habitat by 2010
- Eliminate non-native invasive species by 2010

Actions

Action	Lead Partner	Other partners
1. Policy and legislation		
Ensure that UDP policies are in place to protect canal habitats	CMBC (DP)	CMBC (CAFU)
Consider the impact on canal habitats when assessing planning applications	CMBC (DC)	CMBC (CAFU)
Take opportunities through the planning system to restore or create canal habitats. Explore possibilities of long term management agreements	CMBC (DC)	CMBC (CAFU)

2. Site safeguard and management		
Undertake an environmental appraisal prior to any works and consult with the relevant authorities	BW	
Ensure that maintenance works do not compromise the conservation status of key habitats and species.	BW	
Identify and implement opportunities to enhance or create habitat Example projects: • Fencing of canal-side pasture to protect banks from livestock poaching leading to loss of vegetation, siltation of the channel and loss of water vole habitat. • "Soft "bank protection measures to protect eroding banks. • Appropriate management of riparian trees	BW	CMBC (CAFU), CF, CLA, FWAG, DEFRA/RDS, EA, NE, HSS, YWT, Canal User Groups eg angling clubs, volunteer and local wildlife groups
Identify any invasive alien species in the waterway corridor and draw up plans for eradication, where possible	BW	CF, CMBC(CAFU), CLA, FWAG, NE, HSS, Canal User Groups eg angling clubs, volunteer and wildlife groups
3. Research and monitoring		
Identify the presence and distribution of Calderdale Priority Species within the canal and navigable river corridors and report to the appropriate Lead Partner	BW	CMBC(CAFU), EA, NE, HSS, YWT, WYE
Identify and map key habitats	BW	NE, YWT
Undertake surveys for invasive species and monitor eradication programmes	BW	CF, CLA, FWAG, NE, HSS, Canal User Groups eg angling clubs, volunteer and local wildlife groups
Following works on the waterways monitor to ensure benefits to species and habitats	BW	

4. Advisory		
Advise riparian landowners on the value of buffer zones, which protect the waterway from diffuse pollution and provide a valuable habitat	BW	FWAG, YWT, CLA, CMBC (CAFU)
Advise canal leisure users on good practice to reduce pollution, littering etc.	BW	CMBC (CAFU)
5. Communication and publicity		
Promote the importance of canal and river corridors as a biodiversity resource	CF	ATC, CMBC(CAFU)
Develop links and work with local groups to promote good management practices	BW	CF, CMBC(CAFU)
Education of biodiversity, eg school visits, guided walk, events, interpretation	BW	ATC, CMBC(CAFU)

Plan Co-ordinator

Jonathan Hart-Woods, British Waterways

2.6 Hedgerows

Introduction

Hedges that are classed as ancient, i.e. in existence before the Enclosure Acts and specifically before 1875 as defined by the Hedgerow regulations 1997, or species-rich, i.e. those that contain five or more native wood species in an average 30-metre length, are included in this plan, as are those that contain fewer woody species but have a rich ground flora of herbaceous plants. Where hedges are associated with a green lane, ditch, bank or verge, these features are also considered to form part of the hedgerow.

Hedges vary enormously around the country; they generally consist of a line of shrubs, sometimes with trees and usually with a layer of herbaceous vegetation beneath. The field margin is that area at the edge of a cultivated field; it provides a transitional or "buffer zone" between the crop and the hedge or field boundary, as well as being of value to wildlife itself.

Hedgerows are important habitats for at least 47 species of conservation concern, including 13 globally threatened or rapidly declining species. Associated UK BAP species are bullfinch, linnet, reed bunting, tree sparrow and turtle dove. Hedgerows are especially important for butterflies and moths, the smaller farmland birds and dormice, while hedgerow trees are an important habitat for the larger birds and bats and dead wood invertebrates. They also act as wildlife corridors for many species, including reptiles and amphibians, allowing dispersal between habitats.

Current Status

National

There are estimated to be 450,000 km of hedgerows in the UK, of which 190,000 km is ancient or species rich. The main areas are the south west of England, south Wales and Northern Ireland. Between 1984 and 1990 22% of hedgerows were lost in the UK, today this loss has slowed but is estimated to run at 1.7% per year by removal and 3.4% per year by neglect.

Regional

The Yorkshire and Humber region is estimated to have around 37,400 km of Ancient and/or species rich hedgerows (Selman, Dodd and Bayes, 1999).

Local

In Calderdale Hedgerows are more abundant in the east of the district, in the Coal Measures Natural Area, with drystone walls being more common towards the west, in the

Southern Pennines. Hedges have often been engulfed by the growth of urban areas and can be found within pockets of encapsulated countryside. Survey work is essential to determine the extent, quality and distribution of hedges within the district.

Current factors causing loss or decline

- Agricultural improvement, mineral working, road improvements and general development.
- Loss of Hedgerow trees through old age and felling usually without any replacements being planted.
- In-appropriate management, especially cutting at the wrong time and lack of management so they change into a line of trees with gaps in between.
- Stock pressure and lack of management, allowing higher grazing pressure on the hedge and hedge bottoms so hedges become open and bare at the base.
- Hedges are rarely layered or gapped up as wire is used to make the hedges stock proof.

Current Action

- Countryside Stewardship can enable hedgerows to be managed, restored and planted.

Legal status

- The Hedgerow Regulations came into effect on the 1 June 1997. These Regulations introduced a system whereby it is illegal to destroy hedgerows which fall within the scope of the Regulations without first notifying the local authority of the intent to do so. Having received such a notification the local authority must assess the hedgerow against a number of historic, ecological and landscape criteria and, if the hedgerow satisfies one or more of these criteria, the local authority can serve a Hedgerow Retention Notice. The Hedgerow Regulations are currently being reviewed.
- Article 10 of the European Community Habitats Directive requires member states to encourage the management of hedges in their land use planning and development policies with a view to improving the ecological coherence of the Natura 2000 network. This is reflected in the Conservation (Natural Habitats, etc,) Regulations 1994, which recognises that linear features are essential for the migration, dispersal and genetic exchange of wild species. PPG9 (Nature Conservation 1994) further encourages the development of polices for the management of hedgerows.
- The Forestry Act 1967 requires a landowner to have a Felling Licence from the Forestry Commission before felling more than a given volume of trees of a specified size. Licences may be refused or issued with conditions, and it is a criminal offence to exceed the felling limits without a licence. Tree Preservation Orders operated by the local authority have a similar effect. However, while these measures can protect the trees in

a hedgerow, they cannot protect the hedge itself.

- Planning permissions frequently contain conditions requiring the retention or planting of hedgerows. For example, the restoration of mineral workings can bring benefits for wildlife and the landscape, through the establishment of new tree and shrub planting.

Priority Species associated with this habitat

Pipistrelle Bat, Dunnock, Linnet, Bullfinch, Yellowhammer, Reed Bunting, Tree Sparrow, Intermediate Enchanters Nightshade, Sherad's Downy-rose.

Targets

- Ensure all species rich and/or ancient hedgerows are maintained in an ecologically favourable condition
- Plant 10 km of new species-rich hedgerows by 2010

Actions

Action	Lead Partner	Other partners
1. Policy and Legislation		
Ensure that UDP policies are in place to protect ancient and species rich hedgerows	CMBC (DP)	CMBC (CAFU)
Consider the impact on ancient and species rich hedgerows when assessing planning applications	CMBC (DC)	CMBC (CAFU)
Enforce Hedgerow Regulations 1997	CMBC (DC)	CMBC (CAFU), NE
Ensure that the best examples of hedgerows are designated as SEGIs	WYE	CMBC (CAFU), CMBC(DP)
Take opportunities through the planning system to restore or create hedgerows. Explore long term management agreements	CMBC (DC)	CMBC (CAFU)
2. Site safeguard and management		
Improve hedgerow and field margin management	FWAG	DEFRA, NFU, CLA
Promote the conservation management of hedgerows across farm holdings through the promotion of Whole Farm Plans	FWAG	RSPB, NFU, CLA, DEFRA, NE, CMBC (CAFU)

Encourage the planting of hedges with native species of local provenance	NFU	CMBC, FWAG, DEFRA
Encourage the planting and retention of native standard trees in hedgerows	FWAG	NFU, CMBC(CAFU)
3. Research and monitoring		
Carry out survey work and involve local groups in monitoring hedgerows. Ensure that surveys are all carried out with the same methodology	HSS	WYE CMBC(CAFU)
Maintain sites database	WYE	CMBC(CAFU), HSS
4. Advisory		
Disseminate information on best management practice and the importance of such areas to owner/occupiers and developers (leaflets)	NE	FWAG, RSPB, CMBC (CAFU), CMBC (DC)
Arrange training courses in hedge-laying, management	CMBC(CAFU)	BTCV, FWAG
5. Regional		
Develop a demonstration area to show best management practice al/Regional)	FWAG	NFU, CLA, DEFRA, RSPB
6. Communication and publicity		
Promote an awareness amongst the public and land managers of the importance of hedgerows and their associated features and for the need for appropriate management	FWAG	ATC, CMBC (CAFU)
Publicise sources of advice and grant aid for hedgerow management, including Countryside Stewardship	FWAG	CMBC

Plan Co-ordinator

Hugh Firman, Conservation Officer

2.7 Native Woodland

(Upland Oak Woodland, Lowland Mixed Deciduous Woodland and Wet Woodland)

Introduction

This Habitat Action Plan covers woodland types upland oak woodland, lowland mixed deciduous woodland and wet woodland. In Calderdale the majority of woodlands fall into the NVC classes W10 and W16, both of which equate to the lowland mixed deciduous woodland national priority habitat.

Both wet woodland and upland oak woodland habitats are rare in Calderdale. The South Pennines are on the fringe of what is classified upland by the UK BAP and, as such, does not have significant areas of NVC classes W11 and W17, Upland Oak Woodland.

Wet woodlands, NVC classes W1 to W7, are similarly rare in Calderdale, although this is largely due to land drainage and agricultural improvements.

The most ecologically important woodlands are listed in the Inventory of Ancient Woodland (IAW), West Yorkshire, and the distribution of these woodlands in Calderdale is shown on Map 1.

Whilst those woodlands listed in IAW will form the priority areas for management, the objectives and actions set out in this plan will also be applied to woodlands not listed, since, whilst they may not have the same ecological value, they can nevertheless still be important habitats.

Similarly, since an important aspect of the Biodiversity Planning process is the creation and expansion of Priority Habitats, this plan also covers newly created woodlands. This can mean both planted woodlands where nature conservation is a primary objective or woodlands created through natural colonisation.

Current Status

National

Britain is one of the least wooded countries within Europe. The Inventory of Ancient Woodlands records 2,000,000 ha of woodland nationally of which 534,000 ha are estimated to be ancient. Approximately 302,000 ha of this total can be described as ancient semi-natural woodland, the balance having been made into plantations.

Regional

Yorkshire and the Humber have 6.7% of the ancient and natural woodland in England and Wales. The "Biodiversity Audit of Yorkshire and the Humber" estimates that 53% of the region's woodlands (excluding North Yorkshire) is in a natural condition, with the remainder being having been replanted with crop trees.

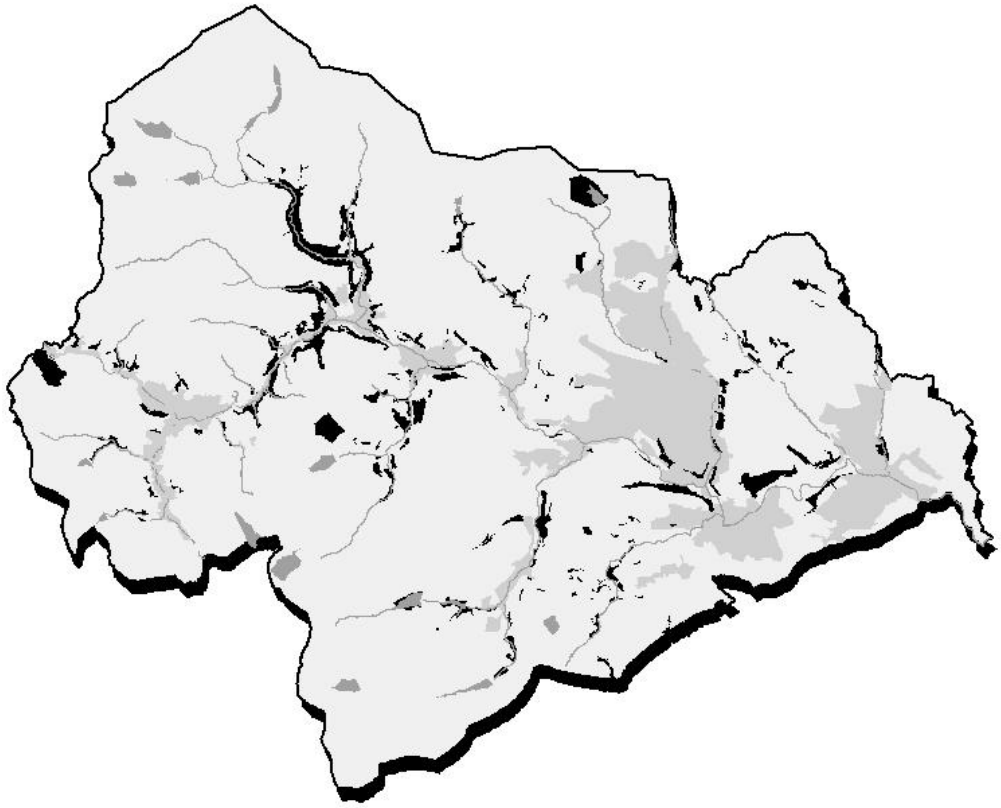
The report also highlights the fact that information is patchy. As an example the report identifies the fact that, whilst information relating to ancient woodlands exists, only 16% of the district's woodlands have been surveyed for NVC.

Little information exists in relation to wet woodland. The "Biodiversity Audit of Yorkshire and the Humber" estimated there to be 343 ha of wet woodland in the region, although the actual amount is likely to be much higher.

Upland oak woodland is also rare in the district, since the region is not strictly an upland area. Small stands of W11 have been surveyed in the Pennines, although again NVC data for the region is patchy and, as a result, the actual figures for this type of woodland are likely to be slightly higher.

Local

Calderdale has approximately 1400 ha of woodland (3.8% woodland cover) of which 660 ha is recorded in the Inventory of Ancient Woodland.



Virtually all of Calderdale's woodlands can be described as being in an unfavourable condition, consisting mainly of relatively dense even aged stands. A combination of an almost total lack of management in the recent past and a history of stock grazing has seriously degraded many woodlands.

Throughout Calderdale woodlands tend to occur on the steep scarp slopes associated with the district's deep incised valleys. The majority of the oak clough woodlands have been excessively grazed and many are facing total destruction.

Where management has been undertaken in recent times, this has primarily been related to access improvements with limited silvicultural works being undertaken. Few woodlands have

active ecological management plans in place.

Current Factors Causing Loss Or Decline

- Grazing – domestic stock has been, and continues to be, grazed in many of the district's woodlands and this has had a detrimental effect on the natural regeneration and floral diversity of many woodlands.
- Invasive species – as well as herbaceous woody species, which can have adverse effects on regeneration, non-indigenous tree species such as sycamore and beech is included in this category.
- Inappropriate management, including lack of management, has resulted in many woodlands having a poor age and species structure.
- Development pressures – Calderdale has a shortage of suitable development land and, as such, pressures on some woodland sites is very high.
- Recreational pressures – a significant number of woodlands in the district are close to large urban populations and are subject to high levels of recreational use. This can potentially be detrimental to the woodland ecosystem.
- Pollution has had a significant impact on growth of trees and associated flora e.g. lichens.

Current Action

Calderdale Countryside and Forestry Unit has established a number of Forestry Commission Grant Contracts on some areas of publicly owned woodland. These contracts relate largely to access improvement works, although most do include some habitat and silvicultural work.

Calderdale Countryside and Forestry Unit has also been actively pursuing a programme of new woodland planting through Landscape Conservation Grants (1986 – 1990) and the Million Trees Initiative (1991 – present). This has seen the creation of approximately 130 ha of new woodland at 84 sites, consisting largely of native oak and birch species, many grown from seed.

SCOSPA have produced an "Integrated Management Strategy And Conservation Plan for the South Pennines Moors SPA", which covers the Southern Pennines Natural Area. The plan aims to increase and enhance the key habitats within the SPA and surrounding areas and support the implementation of the UK Biodiversity Action Plan.

Treesponsibility, a local voluntary organisation, have been actively pursuing a planting program targeted primarily on sites in the upper valley area. In the past five years the group have planted 10 ha of new native woodlands.

The England Forestry Strategy produced by the Forestry Commission describes how the Government will deliver its forestry policies as well as setting out the Government's priorities and programmes for the next ten years. Included within the document are

proposals to protect existing woodlands and to use the biodiversity action planning process as a guide to nature conservation.

Legal status

Some woodlands are protected by TPOs. A Felling Licence is required to fell more than five cubic meters of timber.

Priority Species

The following Calderdale Priority Species are associated with this habitat:

Bats e.g. Noctule, Diptera e.g Manota unifurcata, Solitary wasp e.g. Crossocerus binotatus, Ferns e.g. Narrow Buckler Fern, Plants e.g. Round-Leaved Wintergreen, Wood Cranesbill, Mosses e.g. Dicranodontium denudatum Birds e.g. Woodcock, Lesser Spotted Woodpecker, Pied Flycatcher, Bullfinch, Willow Tit, Spotted Flycatcher, Willow Warbler, Wood warbler, Song Thrush, Tree Pipit, Green Woodpecker, Stock Dove, Turtle Dove. Fungi e.g. Deathcap, Old Man of the Woods, Ghost Bolete.

Targets

- Ensure all native woodland wildlife sites (i.e. SSSIs and SEGIs or equivalent) are maintained in an ecologically favourable condition.
- Restore 5 ha of upland oakwood, 150 ha of lowland mixed deciduous woodland and 5 ha of wet woodland by 2010.
- Create 20ha of upland oakwood, 40 ha of lowland mixed deciduous woodland and 5 ha of wet woodland by 2010.

Actions

Action	Lead Partner	Other partners
1. Policy and legislation		
Ensure that UDP policies are in place to protect native woodlands	CMBC (DP)	CMBC (CAFU)
Consider the impact on native woodlands when assessing planning applications	CMBC (DC)	CMBC (CAFU)
Enforce TPOs as appropriate	CMBC (DC)	CMBC (CAFU), NE
Take opportunities through the planning system to restore or create woodlands.	CMBC (DC)	CMBC (CAFU)

Explore possibilities of long term management agreements		
Ensure that the best examples of native woodland are designated as SEGIs or SSSIs	WYE / NE	CMBC (CAFU), CMBC(DP)
2. Site safeguard and management		
With owner/occupiers, draw up ecological management plans for woodlands, targeting ancient woodlands	CMBC(CAFU)	
Implement management plans, targeting ancient woodlands	CMBC(CAFU)	FC, KWC
Assist and support applications for grant funding	CMBC(CAFU)	FC, Trees
Locate areas adjacent to existing sites of value and assess potential for expansion	CMBC(CAFU)	FC, Trees
Create new woodlands through tree planting and natural regeneration. Use trees of local provenance wherever practicable (Prioritise linking fragmented woodland habitats)	CMBC(CAFU)	FC, Trees
Restore degraded woodlands	CMBC(CAFU)	FC, Trees
Encourage sustainable woodland management eg registration with FSC, using local contractors, coppice crafts etc.	CMBC(CAFU)	FC, KWC, Trees
Produce a Calderdale Woodlands Strategy	CMBC(CAFU)	all partners
Propagate trees using seeds of local provenance	CMBC(CAFU)	Trees
3. Research and monitoring		
Determine and monitor extent of habitat	CMBC(CAFU)	
Assess ecological condition of wildlife sites	CAFU	Trees
Maintain sites database to include information such as ecological condition, NVC type and land ownership	CAFU	WYE
4. Advisory		
Disseminate information on native woodland creation and management to owners/occupiers and policy makers	CMBC(CAFU)	Trees
Provide advice on woodland management and grant and certification schemes	CMBC(CAFU)	FC, Trees

5. Regional		
Co-ordinate woodland initiatives at a sub-regional level	WRF	FC, CMBC (CAFU)
6. Communication and publicity		
Establish and support a Calderdale Woodlands Group	CMBC(CAFU)	All partners
Raise awareness of the importance of this habitat	CMBC(CAFU)	ATC

Plan Co-ordinator

Jefferson Hammond, Countryside and Forestry Unit, Calderdale Council

2.8 Rivers and Streams

Current Status

National

Rivers and streams are by their very nature dynamic, they constantly change their course, they respond to levels of rainfall by adapting to alterations in flow. However most rivers have been engineered throughout the centuries, be it to provide power or protect land from flooding. This has meant that many stretches of river are no longer 'natural' and need to be managed in imaginative ways to provide a level of biodiversity where otherwise little would survive. Where rivers are not channelled a wide variety of wildlife habitats can act as vital wildlife corridors. They also provide a vital resource in terms of sewage disposal, flood control, recreation and leisure opportunities.

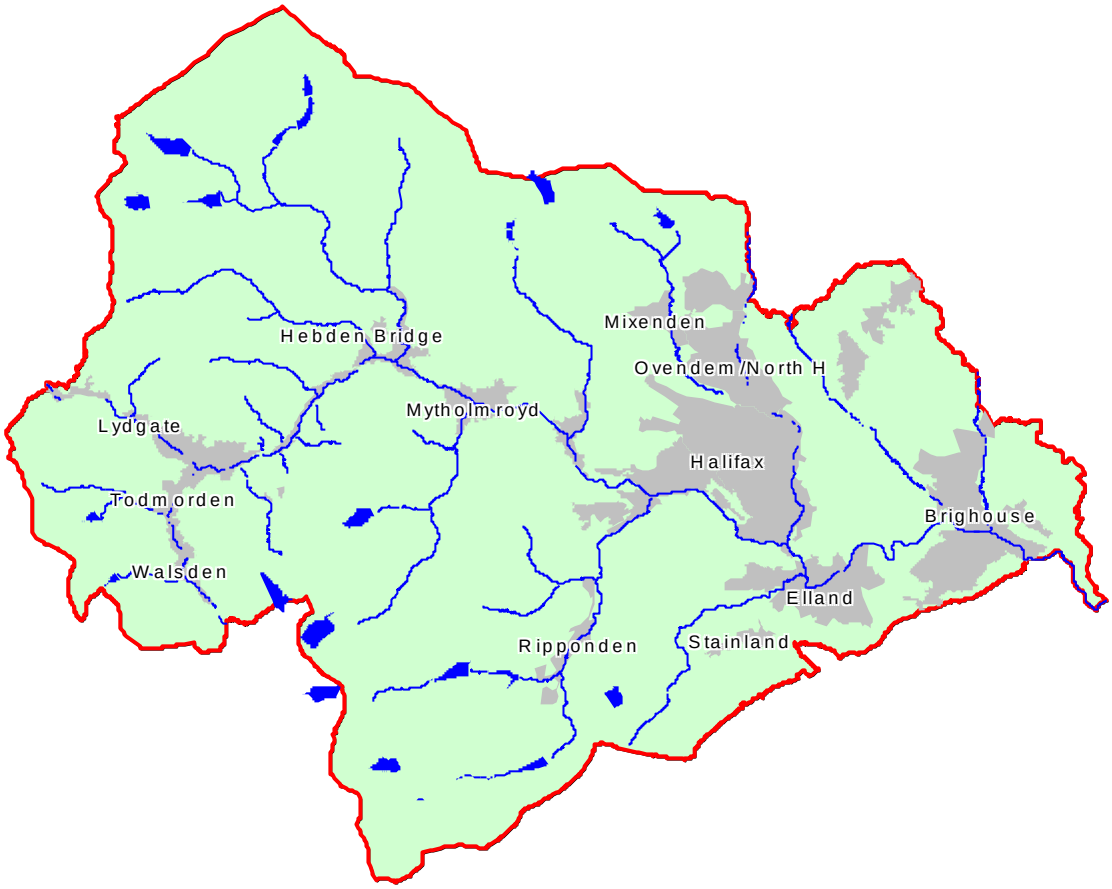
The plants and animals that live near to and within the river environment reflect the geology, geography and water quality of the waterways. River and streams can be capable of self-regulation if their ecological potential is realised and managed sensitively. Rivers should be managed and viewed as a whole, including their source and catchment, and along their whole length.

The habitat is defined to include main and secondary channels and hydrologically linked floodplain features such as abandoned channels which are affected by major flooding events. The riparian zone is also included. Key habitats include riffles, waterfalls, exposed riverine sediments (such as shingle banks) and rocks, soft earth cliffs and undisturbed abandoned channels. Marginal and in-stream vegetation is also important. A special feature of all wetlands in the floodplain is the periodic disturbance caused by flooding.

Regional

Within West Yorkshire the two main rivers are the Aire and the Calder. The Calder travels west to east through the local authorities of Calderdale, Kirklees and Wakefield. The River Calder is 87km in length and has a total catchment population of 790,000.

Local



The River Calder gives the local authority of Calderdale its name. The boundaries of Calderdale Council roughly equate to the river catchment area.

The River Calder rises in the Pennines above Todmorden (Heald Moor) and travels west to east finally crossing into Kirklees at Cooper Bridge (M62). The Calder has a sister river that travels eastwards into Lancashire. The secondary river of Calderdale is the River Ryburn which rises in the south of Calderdale at Rishworth Moor. Due to the geography and geology of the Pennine Watershed a number of tributaries have been created with steep sided valleys running north/south which flow into the Calder. These include Hebden Water, Luddenden Beck, Hebble Brook and Clifton Beck, Cragg Brook, River Ryburn and Black Brook. While in the west of the district the geology is acid millstone grit, further east this changes to gravel beds.

The Calder valley is prone to flooding due to its proximity to the Pennine Watershed. The last major flood was in June 2000 and extensive damage was caused with both the road and rail service closed across the Pennines and 772 residential and 64 commercial properties severely affected. As the Calder travels eastwards the valley widens and acts in many instances as a flood plain.

Throughout the district the quality of water is considered to be good (Environment Agency Classification). The river is nevertheless home to a number of sewage processing works which affect the diversity of invertebrate fauna found within the main river and the visual impact of the river has historically been adversely affected by sanitary litter.

Current factors causing loss or decline

- The demand for land for both economic and residential development has meant that historically some of the floodplains have been built on, in some instances at the expense of the natural environment.
- Weirs can form a barrier to the free movement of fish and have a significant impact on the sustainability of stocks.
- Construction of dams and reservoirs.
- Culverting.
- Flood defence and land drainage works.
- Inappropriate bank management.
- Introduction of invasive plant and animal species (especially Japanese knotweed, Indian balsam and mink).
- Navigation.
- Overgrazing
- Land drainage increasing storm flow and fine sediment load.
- Channel straightening resulting in removal of important habitat features.
- Diverse and point source pollution e.g. mining waste
- Litter - this encompasses casual littering and fly tipping. The valley creates a vortex down which litter is carried. As a result of natural water levels rising and subsequently falling so swiftly after heavy rainfall, litter is left on low branches and trapped on weirs and is unsightly and difficult to remove. Many of the mills that lie close to the river are home to small businesses that are attracted by cheap rents and do not invest in environmental management of their waste and as a consequence litter escapes and is deposited in the river or on its bank sides.
- Drought leading to slow flows.

Current Action

- Calder Future is a partnership organisation working to improve the water environment including the main river and its tributaries and the canal network within Calderdale. The partnership is comprised of all the main statutory bodies e.g. Calderdale Council, Environment Agency, Yorkshire Water, British Waterways and various community based user and environmental groups. e.g. Calderdale Friends of the Earth, Treesponsibility, Halifax Canoe Club and Northern Naturefriends
- Calderdale Council is producing a Supplementary Planning Document on Waterside Development.
- Yorkshire Water is in the process of a huge investment plan to arrest the problem of Combined Sewage Overflows.
- The Environment Agency is investing over £30 million in flood defence work in the upper valley.
- The Upper Calder Valley Renaissance process (a RDA Yorkshire Forward funded programme) is looking to improve the economic, social and environmental regeneration of

the Calder Valley. Much of their work is centred upon opening up and improving access to the river and canal environment of Calderdale.

Priority Species

The following Priority Species are associated with this habitat: bats, water shrew, water vole, otter, black-headed gull, kingfisher, sand martin, yellow wagtail, grey wagtail, grasshopper warbler, reed bunting, gynnidomorpha alismana (a micro moth), white-clawed crayfish, leptopeza borealis (a hybotid fly), cheilosia ranunculi (a hoverfly), heringia (neocnemodon) verrucula (a syrphid fly), spania nigra (a rhagionid fly), alternate water-milfoil, hairlike pondweed, horned pondweed, lejeunea lamacerina (a liverwort).

Targets

- Ensure all rivers and streams wildlife sites i.e. SSSI's, SEGI's or equivalent are maintained in an ecologically favourable condition.
- Restore 5 km of degraded habitat by 2010
- Create 5 km of new habitat by 2010
- Maintain water quality at existing and, where possible, improved levels

Actions

Action	Lead Partner	Other partners
1. Policy and legislation		
Ensure that existing UDP policies, SPD and other legislation is integrated in Calderdale.	CMBC (DC), EA	CF, EN
Consider the impact on river environment when assessing planning applications	CMBC (DC)	CF, EA
Produce and implement SPD on waterside development in Calderdale	CMBC (DP)	CF
Take opportunities through planning system to restore or create river habitats.	CMBC (DC)	CF, EA
Ensure current and future strategic initiatives and collaborative projects take forward actions from this Action Plan	CF	EA, CMBC (DP), YW
Ensure that the best examples of rivers and streams are designated as SEGIs or SSSIs	EN / WYE	CMBC(CAFU), CMBC(DP) EA
2. Site safeguard and management		

Take opportunity to enhance degraded habitats and create new ones	CMBC (CAFU), CF	CF, EA, WYE, YWT
Treat sources of polluted water	EA	Coal Authority
Take opportunities to remove weirs / provide fish passes	EA	CMBC (CAFU), EA, YWT CMBC (DC)
3. Research and monitoring		
Identify key areas to target for river habitat protection and restoration/enhancement and co-ordinate actions	CMBC (CAFU), CF	CF, YW, EA, Landowners, DEFRA, FWAG, HSS, TNHS, UCWN, WYE, YWT, BTCV
Develop floodplain policies that maximise biodiversity gain and set targets for reconnecting former flood plain to the River Calder	EA	CMBC(DP), CF
Undertake surveys for invasive species (Japanese Knotweed, Indian Balsam and Mink) and implement and monitor eradication programmes	CF	CMBC, YW, EA, Landowners, DEFRA, EN, FWAG, HSS, TNHS, UCWN, WYE, YWT
4. Advisory		
Provide advice on biodiversity enhancement	CMBC (CAFU)	EA, CF, YW
5. Communications and publicity		
Promote the importance of the waterways as a biodiversity resource	CF	CMBC(CAFU), ATC
Develop links and work with local groups to promote good management practices	CF	CMBC(CAFU), ATC
Work with schools to educate about the riverine environment	CF	CMBC(CAFU), ATC

Plan Co-ordinator

Jane Williams, Calder Future

2.9 Unimproved Grassland

Current Status

National

Grasslands are widespread throughout the country and can be divided broadly by their degree of agricultural improvement, the soil type and the water regime.
In the Calderdale context the main types are lowland grasslands on neutral soils, and more elevated grasslands on less nutrient rich soils, some of which may be distinctly acidic, and may be wet.
Much of the most interesting grassland in the district is of this type, often called In-bye, which is restricted to higher ground around the edges of moorland and is generally more common in the north of England.
In-bye consists of unimproved and semi-improved grassland, it is often with associated wet rushy or boggy areas, adjacent to, or close to unenclosed moorland. It may include improved permanent grassland where this is part of the local mosaic, or contains wet areas. Upland hay meadows, which may be part of the in-bye mosaic, have their own Action Plan nationally. In-bye does not generally have a particularly diverse flora, although some springs and flushes may be important. It does however form a vital feeding and breeding area for many upland birds, especially breeding waders – lapwing, curlew, snipe, redshank and feeding golden plover.
Lowland meadows are quite a wide family of grasslands, ranging from relatively rich wet pastures through to hay-meadows. Within Calderdale wet seasonally flooded meadows exist in the valley bottoms with drier hay meadows on the shallow slopes of the lower valley sides. Roadside verges can be important in areas with few grasslands.
All these types tend to grade into each other, and firm definitions are often difficult and may not be very helpful.

Regional

The Southern Pennines holds an important representation of the southern-most extent of in-bye grassland. Many upland breeding birds feed on these areas and depend on the abundance of seeds and invertebrates during the breeding season and the pastures provide soft ground conditions for probing waders. The mosaic of habitats within the in-bye attracts a variety of species. Other grassland types are poorly represented, with most lowland grassland being improved. These may still be important in places for a variety of birds, especially where they exist as set-aside or as damp areas within more improved ground.

Local

In-bye habitat is scattered but fairly extensive along the western boundary of the district, associated with the uplands of the South Pennine Moors. Calderdale does include significant areas of upland acid grassland, some of which is degraded heathland.

Lowland grassland is found in east Calderdale and along the valley bottoms. Wet rushy pastures are common. Hay meadows are now scarce in the South Pennines

Current factors causing loss or decline

- Agricultural improvement (particularly a change to silage, which may include ploughing and re-seeding as well as more intensive cutting) and drainage.
- Changes from traditional agricultural practices, such as increased use of grasslands for horse paddocks, can result in over-grazing.
- Loss of habitat due to development.
- Inappropriate management, especially cutting at the wrong time and over-grazing, can cause damage to the interest of the habitat.
- Supplementary feeding can cause localised eutrophication.
- Abandonment can result in areas reverting to scrub.
- Flood control may result in wet grassland no longer being allowed to flood.

Current Action

- RSPB/NE/FWAG In bye land initiative
- Countryside Stewardship
- Environmental Impact Assessment legislation.
- The Standing Conference of South Pennine Authorities (SCOSPA) has written an Integrated Management Strategy and Conservation Action Plan for the South Pennines Moors SPA (Special Protection Area) which aims to increase and enhance the key habitats within the SPA and surrounding area and support the implementation of the UK Biodiversity Action Plan through funding bids.

Legal Status

- Environmental Impact Assessment legislation.

Priority Species

The following Calderdale Priority Species are associated with this habitat:
Birds e.g Twite, Hobby, Lapwing, Snipe, Curlew, Skylark, Meadow Pipit, Linnet, Yellowhammer Reptilies e.g Grass snake Butterflies and Moths e.g Ghost Moth, Small Copper, Chimney Sweeper Plants e.g Autumn Crocus, Frog orchid. Fungi e.g Pink Waxcap, Earthtongue, Straw Club, Date Coloured Waxcap

Targets

- Ensure all wildlife sites (i.e. SSSIs and SEGIs or equivalent) are maintained in an ecologically favourable condition.
- Restore a further 20 ha of unimproved grassland by 2010.
- Create 100 ha of unimproved grassland by 2010.

Actions

Action	Lead Partner	Other partners
1. Policy and Legislation		
Ensure the needs of in-bye are taken into account when developing and adjusting agri-environment schemes	DEFRA/RDS	CMBC(CAFU), NE, FWAG, RSPB
Ensure that UDP policies are in place to protect this habitat	CMBC (DC)	CMBC (CAFU)
Consider the impact on this habitat when assessing planning applications	CMBC (DC)	CMBC (CAFU)
Take opportunities through the planning system to restore or create grasslands. Explore possibilities of long term management agreements	CMBC (DC)	CMBC (CAFU)
Enforce EIA legislation as appropriate	CMBC (DC)	CMBC (CAFU), NE
Ensure that the best examples of unimproved grassland are designated as SEGIs or SSSIs	WYE / NE	CMBC (CAFU), CMBC(DP)
Ensure the needs of the habitat are accounted for in Flood Defence Catchment Management Plans	EA	CMBC (CAFU)
2. Site safeguard and management		
Gather information on the value of areas (identify bird feeding/breeding areas and any lowland grassland sites of interest). Inform owners/occupiers and EN	WYE	NE, RSPB, CMBC (CAFU), HBC, HSS, TNHS, UCWN, YWT
With owner/occupiers, draw up management plans for all wildlife sites. Assist with and support applications for CS where appropriate	WYE	RSPB, FWAG, DEFRA, NE, CMBC (CAFU), YW
Identify areas adjacent to existing sites of value and assess potential for expansion	CMBC (CAFU)	RSPB, WYE, YW
3. Research and monitoring		
Monitor extent of habitat	NE	WYE
Maintain sites database	WYE, CMBC (CAFU)	

4. Advisory		
Disseminate information on best management practice and the importance of key areas to owner/occupiers and policy makers	NE	FWAG, RSPB, CMBC (CAFU)
Provide advice on habitat re-creation /restoration	NE	RSPB, FWAG, WYE
5. Regional		
Consider the development of a demonstration area to show best management practice	RSPB	CMBC (CAFU), NE, FWAG
6. Communication and publicity		
Raise awareness of the importance of this habitat	CMBC(CAFU)	ATC

Plan Co-ordinator

Paul Duncan, Natural England

2.10 Urban – Brownfield Sites of Ecological Importance

Introduction

Urban habitats are very diverse in their nature. They can include large established gardens, brownfield sites and urban greenspace, such as allotments, churchyards and parks. They can support a huge range of animals and plants and play a crucial role in maintaining habitats that provide resources and refuges for species that are under pressure in rural areas.

People's contact with wildlife increases their quality of life and this can help to relieve the stresses and strains of everyday living. The involvement of local communities in encouraging wildlife in towns and villages is very important. If we are to retain the variety of wildlife in urban areas, it must be recognised, valued, protected and managed as a vital component of the townscape.

An important characteristic of urban areas as a whole, as well as of the greenspaces they hold, is their mosaic of habitats. They can also provide a vital function as wildlife corridors.

There is a wide range of species associated with urban habitats, including Common Pipistrelle Bat *Pipistrellus pipistrellus*, House Sparrow *Passer domesticus*, Swallow *Hirundo rustica*, House Martin *Delichon urbica* and Swift *Apus apus,* which all rely principally on houses for roosting and breeding. Tree Sparrow *Passer montanus*, Song Thrush *Turdus philomelos*, Hedgehog *Erinaceus europaeus* and many insects, including butterflies, are supported by well-grown gardens. Garden ponds support all our amphibian species, especially Common Frog *Rana temporaria*. Mammals, such as Badgers and Foxes, are well accustomed to urban areas and often exist in higher numbers than in the countryside.

Urban greenspace

Urban gardens, road verges and public open space now form a very significant resource for wildlife. Individual areas are small but cumulatively provide an area far in excess of that of nature reserves. These habitats also include buildings (residential and industrial), allotments and associated features, such as incidental green space (small areas of open space with limited facilities). They may be mown grass or other land that receives little or no direct management, cemeteries, churchyards, school grounds, parks and culverts. Urban greenspace may also have some overlap with other habitat action plans (e.g. rivers, ponds, grassland, hedgerows and ancient trees) where areas of these habitats occur within an urban area.

Brownfield Sites of Ecological Importance

It is increasingly appreciated that there are recognizable 'natural' urban habitats, which develop on waste ground and derelict sites (so-called 'brownfield' sites). A brownfield site is

any land or premises that has previously been developed and is not currently fully in use. Such sites may include partially occupied industrial estates, unoccupied ex-industrial areas, waste or derelict sites. Sites that have become naturally vegetated and blend into the landscape are excluded from brownfield classification. The proposed UK BAP Brownfield Priority Habitat specifies sites of 'bare ground and early successional mosaic habitats of previously developed land or open vegetation mosaic habitats on brownfield land' as those of key wildlife importance.

These sites may be of ecological interest due to the presence of distinctive species including lichens, higher plants and invertebrates, or habitats including scrub. These habitats and species may be ephemeral or transitory and may contain a mix of native and introduced species, such as Buddleia, as well as providing unusual and/or early successional habitats, thus creating a very diverse ecosystem. The mosaic of habitats and ephemeral colonising species found on brownfield sites give rare ground-nesting bees and wasps, and early successional carabid beetles the mixture of breeding sites, foraging areas and shelter they need within relatively small areas. For these and other protected species, urban areas are now their strongholds. Later stages of succession - short perennial, tall ruderal and then through to woodland - equally contain many uncommon invertebrates with flies, bees, wasps, including some parasitic species and sawflies.

Brownfield Sites of Ecological Importance are one of the least appreciated habitats nationally and locally. They are often unappealing to the human eye and, unfortunately, because of lack of appreciation of their wildlife importance, national and local government encourages development of these sites. Despite their aesthetics brownfield sites provide some of the most bio-diverse habitats. For example they can contain as many Nationally Scarce and Red Data invertebrate species as ancient woodland. On Canvey Island, an old oil refinery site on the Thames, over 1300 species have been found in less than two years, 30 of which are on the UK 'Red List'. In Calderdale some of the best sites for wildlife also have Brownfield origins. Cromwell Bottom was once used for gravel extraction and fuel waste storage. Whatever their origin, in an urban population, brownfield sites offer most people their only opportunity to appreciate the importance of biodiversity.

Current Status

National

In 2001, nearly 80% of the UK population lived in urban areas (settlements over 10000 people). It follows that urban wildlife is therefore important for people. In an urbanized country like the UK the majority of people encounter wildlife and biodiversity in a variety of urban settings including parks, gardens and allotments. Brownfield sites are a legacy of the UK's industrial past, and many are now nationally important for wildlife. Despite this, few sites have been declared SSSIs. Examples include Canvey Island in Essex and Orton Brick Pits in Peterborough.

Regional

West Yorkshire is a heavily urbanised area with a high population density. Brownfield Sites of Ecological Importance have been recognised as a Priority Habitat within West Yorkshire and urban habitats assume a greater importance than in many parts of the country.

Local

Calderdale is a relatively green area within a heavily industrialized and urban West Yorkshire. Urban areas make up approximately 10% of Calderdale with the vast bulk of this area within the urban footprint of Halifax. Development tends to concentrate in urban areas because they are often the only areas of suitable flat land. Between 2003 and 2005 there were 2,655 planning applications in Calderdale for New Build or conversion to apartments. Brownfield Sites of Ecological Importance have been recognised as a Priority Habitat within Calderdale.

Current factors causing loss or decline

- Lack of recognition of the importance of brownfield sites and other urban habitats for wildlife. A low level of appreciation of the importance of urban wildlife can lead to significant wildlife losses and limited wildlife gain.
- The targeting of brownfield for development by government policies.
- New development, causing loss of natural habitats, including encroachment onto parks, old cemeteries, old abandoned land and large established gardens.
- PPG3 requires high housing densities leaving fewer opportunities for wildlife areas and large gardens.
- The loss of front gardens to make way for off-road parking.
- The conversion of old buildings/barns etc to residential or other use without taking into account existing wildlife.
- Property repairs causing loss of roosting sites for birds and bats, especially the entombing of bats in cavities by blocking access holes.
- The infilling of garden ponds for real and perceived safety reasons.
- Culverting of urban reaches of watercourse.
- Removal of 'weed' species or the tidying of areas of long grass, which produce either nectar or seeds for wild creatures. Many cultivated plants and flowers are not as attractive to wildlife as native species.
- Over-manicured and hard landscaped gardens, providing few opportunities for wildlife.
- A lack of specialised knowledge of biodiversity can lead to unimaginative or inappropriate schemes of limited value to wildlife.
- Over management: "Green manicures" leading to significant decrease in the biodiversity value of sites e.g. filling in of ponds, tidying of stream banks, leveling of ground, shrub clearance etc.

- Litter and vandalism: litter and vandalism are not a significant wildlife conservation issue in themselves, but when sites become an eyesore it can lead to "green manicures" or development.
- Planting of inappropriate species.
- Introduction and spread of invasive plant, animal and fish species both next to and into ponds and watercourses, which may be due to inappropriate management.
- Inappropriate use of chemicals.
- Poor aftercare and maintenance of sites, which have been landscaped to accommodate wildlife.
- Lack of local ownership (information at grass roots level), or local 'adoption'.

Current Actions

- Brownfield sites are due to be designated a national priority habitat in the UK BAP in 2007.
- Business & Biodiversity, lead by Earthwatch, to encourage the involvement of businesses in the creation and protection of biodiversity through land management, employee volunteering and sponsorship.
- Calderdale Countryside Service hosted a Business and Biodiversity Conference (funded by CSF).
- Many urban parks and Local Nature Reserves are managed with people *and* wildlife in mind. Wellholme Park and Manor Heath Park have achieved Green Flag status while others are working towards the award.
- Calderdale Council has produced an Open Spaces Strategy.
- Calderdale Council has declared 10 Local Nature Reserves (eg Milner Royd, Cromwell Bottom and Beechwood Park). The Council has met Natural England's target of at least 1ha of LNR per 1000 people.
- Other community areas created:
    - Ashen Hurst
    - Northern Nature Friends Eco-Park
    - Brighouse Bridge Park (Calder Future)
    - Tipside riverside area in Todmorden, run by Todmorden Riverside Improvement Group (TRIG)
- Community initiatives e.g. Friends groups such as in Luddenden and other local initiatives.
- Calder Future have various initiatives such as:

  Sowerby Bridge Canal Basin project

  Armitage Road, Brighouse – riverside planting
- Countryside Service:
    - Provides a range of practical services via its volunteers
    - Supports community groups .
    - Gives advice on wildlife gardening in school grounds and to businesses on developing their grounds for biodiversity.
    - Runs environmental education courses for schools and adults.

        - Holds biodiversity and species workshops.
- Yorkshire in Bloom, where the potential for biodiversity gain is increasing.
- Ovenden Initiative.

Legal Status

- Some species, such as Bats, are protected under the Wildlife & Countryside Act, 1981.
- Tree Preservation Orders (TPO) and policies relating to Conservation Areas will protect some trees.
- Some urban sites are designated in the UDP as SEGIs or LNRs.
- The following policy documents, plans and strategies have particular relevance to urban biodiversity at UK and/or England level:
    - UK BAP - Priority HAP for Brownfield early successional and open vegetated mosaic habitats.
    - Wildlife and Countryside Act 1981 (as amended).
    - The Conservation (Natural Habitats,) Regulations 1994.
    - The Hedgerow Regulations 1997.
    - Countryside & Rights of Way Act 2000.
    - Urban White Paper, DETR, 2000.
    - PPG2 Green Belts, PPG3 Housing, PPS9 Nature Conservation, PPG17 Planning for open space, sport, and recreation, PPG25 Development and flood risk.
    - Regional Spatial Strategy, formerly RPG13.
    - Strategic Environmental Assessment Directive 2004.

Priority species

Bats (Noctule, Common Pipistrelle, Soprano Pipistrelle, Daubenton's and Leisler's Bat), House Sparrow, Common Toad, Common Frog, Palmate Newt, Smooth Newt, Micro moth Stenoptillia millierdactyla, Water vole and Water shrew.

Targets

Brownfield Sites of Ecological Importance

- Maintain 100% of current area.
- Restore a further 10 ha of brownfield sites to an earlier stage of succession.

Urban Greenspace

- Ensure there is an accessible natural greenspace less than 300 metres (a 5 minute walk) from all homes.

- Maintain Local Nature Reserves at a minimum level of one hectare per thousand population (achieved).
- Ensure there is at least one accessible 20-hectare site within two kilometres of all homes.
- Ensure there is one accessible 100-hectare site within five kilometres of home.
- Ensure there is one accessible 500-hectare site within ten kilometres of all homes.

Actions

Action	Lead Partner	Other partners
1. Policy and legislation		
Consider the impact on urban wildlife sites and Brownfield Sites of Ecological Importance when assessing planning applications.	CMBC (DC)	CMBC (CS)
Look at opportunities for provision of accessible natural greenspace when assessing planning applications.	CMBC (DC)	CMBC (CS), EA
Ensure that planning policies are in place to protect urban wildlife areas especially Brownfield Sites of Ecological Importance.	CMBC (DPP)	CMBC (CS)
Take opportunities offered by urban regeneration schemes to create new wildlife habitats.	CMBC (Regen)	CMBC (CS), CMBC (DC), EA
Ensure that existing wildlife legislation and local policies relating to urban wildlife are implemented effectively.	CMBC (DC)	CMBC (CS)
Ensure that the best examples of brownfield or urban wildlife sites are designated as SEGIs.	CMBC (CS), CMBC (DPP)	WYE
2. Site safeguard and management		
Work with landowners to deliver wildlife enhancements.	CMBC (CS)	
Reduce amount of fertilizer, peat and pesticide used and introduce sustainable water use.	CMBC (Parks)	CMBC (SD)
Review and implement grassland management by: • Instigating appropriate mowing regimes. • Creation and management of wildflower meadows.	CMBC (Parks)	CMBC (CS)
Ensure appropriate management of invasive	CMBC (CS)	EA, Calder Future

species adjacent to watercourses.		
Ensure planting schemes use appropriate varieties.	CMBC (Parks)	CMBC (CS)
Set up a nursery to propagate plants using appropriate native species of local provenance.	CMBC (Parks)	CMBC (CS)
Review management plans for urban sites and ensure they incorporate wildlife prescriptions such as: • Allow fallen trees to remain in woodland areas. • Create managed wildlife areas in parks. • Install bat/bird boxes. • Allow wet areas to persist.	CMBC (CS), CMBC (Parks)	EA
Produce management briefs for wildlife needs on smaller sites.	CMBC (CS)	
Implement management briefs and plans.	CMBC (CS), CMBC (Parks)	
Promote the creation and management of school wildlife areas.	CMBC (CS)	
Ensure allotment agreements maximize biodiversity opportunities.	CMBC (Parks)	CMBC (CS)
Create and support community groups to manage urban greenspace.	CMBC (CS)	EA, Calder Future
3. Research and monitoring		
Identify current brownfield sites.	CMBC (CS)	HSS, CMBC (DPP)
Devise a rapid assessment methodology to enable Brownfield Sites of Ecological Importance to be identified.	CMBC (CS), Buglife	HSS
Survey urban sites to identify those with valuable biodiversity characteristics.	HSS	CMBC (CS), UVWN
Identify areas of wildlife deprivation, sites with wildlife potential and green corridors in order to achieve NE recommendations of access to greenspace.	CMBC (CS)	CMBC (DPP), CMBC (Parks), HSS, EA
Identify open spaces suitable for environmental education within walking distance of schools.	CMBC (CS)	
Assess parks as a potential facility for environmental education and biodiversity opportunities.	CMBC (CS)	CMBC (Parks)
Survey garden ponds and identify those of	HSS	UVWN

wildlife value.		
4. Advisory		
Produce a guide to assessing the potential wildlife value of brownfield sites.	CMBC (CS)	HSS, Buglife
Provide training and an advice note on wildflower planting and grassland management.	CMBC (CS)	
Provide training and guidance notes to community and allotment groups.	CMBC (CS)	CMBC (Parks)
Provide training to Parks maintenance staff on managing sites for biodiversity.	CMBC (CS)	
5. Communications and publicity		
Promote the importance of wildlife issues in the urban area.	CMBC (CS)	HSS, YWT, EA (waterways)
Promote the importance of dealing responsibly with green waste e.g. avoiding the introduction of non-native species, especially near watercourses.	CMBC (CS)	CMBC (Parks), CMBC (SD)
Promote the concept of green gardening for wildlife to the public.	CMBC (Parks)	HSS, YWT, CSF, CMBC (CS)
Encourage garden bird feeding.	CMBC (CS)	RSPB
Promote public interest in wildlife value of garden ponds.	CMBC (CS)	HSS, UVWN, CSF
Raise public awareness on the roosting needs of bats in relation to house maintenance.	CMBC (CS)	WYBG
Promote wild space in urban areas as an educational resource to inform communities about local wildlife.	CMBC (CS)	Wildlife Groups
Use parks as 'outdoor classrooms' for schools. Run education days with workshops on biodiversity.	CMBC (CS)	
Organise urban development conference to address issues with developers and planners.	WYBAP	CMBC (CS)
Produce and disseminate leaflets, briefings, articles, press releases, events, walks, talks, displays, training, website to raise awareness of biodiversity.	CMBC (CS)	
Promote national initiatives such as Garden Bird Watch, Springwatch and Autumnwatch.	CMBC (CS)	All
Improve and increase signage and on-site interpretation in parks and other urban greenspaces. Ensure management changes	CMBC (Parks)	CMBC (CS)

are explained.		
Set up a demonstration garden for wildlife.	CMBC (Parks)	CMBC (CS)

Plan Co-ordinator

Hugh Firman, Conservation Officer

3. SPECIES ACTION PLANS

3.1 How the species were selected

The Calderdale Species Audit (Revised 2007) identified 321 species of conservation concern. It is not intended that Species Action Plans be written for each of these species. This would not be a good use of resources. The needs of many species are catered for by the implementation of Habitat Action Plans, while others have conservation needs which have been addressed by a generic Priority Species action plan, which has been written to include actions applicable to all Priority Species. Species Action Plans have been written for pink waxcap, twite and water vole. For each of these species there are ongoing conservation initiatives. **Please note that initiatives for species without specific action plans (listed in Appendix 1 and the Species Audit) are addressed under the generic Priority Species Action Plan in para 3.3.**

3.2 Format of the Species Action Plans

The format of the Species Action Plans follows a similar format to the Habitat Action Plans.

3.3 Priority Species

Current Status

National

1250 species have been identified in the UK BAP as Priority Species or Species of Conservation Concern. However, subsequent research and population declines has resulted in many other species being recognised as being of national conservation importance in such publications as the '*Red List of Birds of Conservation Concern*'.

Regional

The Yorkshire and Humber Biodiversity Forum published a draft list of species of regional importance in 2003.

Local

The Calderdale Species Audit was published in November 2003. This document identifies 244 species of conservation importance, known as 'Calderdale Priority Species'.

Current factors causing loss or decline

Populations of Priority Species have declined due to a vast range of factors.

Current Action

- Halifax Birdwatchers Club and Halifax Scientific Society publish annual reports listing species records.

Legal status

Several of the Priority Species are protected by legislation such as the Wildlife and Countryside Act 1981 (as amended).

Targets

- To establish sustainable populations of all Calderdale Priority Species.

Actions

Action	Lead Partner	Other partners
1. Policy and Legislation		
Ensure the needs of key species are taken into account when developing and adjusting agri-environment schemes	DEFRA/RDS	CMBC(CAFU), NE, FWAG, RSPB
Ensure that UDP policies are in place to protect Priority Species	CMBC (DP)	CMBC (CAFU)
Consider the impact on Priority Species when assessing planning applications	CMBC (DC)	CMBC (CAFU)
Take opportunities through the planning system to restore or create habitats for Priority Species. Explore possibilities of long term management agreements	CMBC (DC)	CMBC (CAFU)
Enforce legislation as appropriate	CMBC (DC)	CMBC (CAFU), NE, WYP
Consider designation as SEGI/SSSI of key sites for Calderdale Priority Species	NE / WYE	CMBC (CAFU), CMBC (DP)
2. Site safeguard and management		
Ensure that all management plans take account of Priority Species	NE / WYE	CMBC(CAFU), UU, YW, YWT
Identify and implement opportunities to enhance or create habitat for the benefit of Priority Species	FWAG	DEFRA, EA, NE, WYE, CMBC(CAFU), UU, YW
3. Species management and protection		
4. Research and monitoring		
Concentrate species recording efforts on Priority Species	WYE	CMBC(CAFU), NE, HBC, RSPB

Prioritise species list to enable conservation effort to be focussed on those species of greatest conservation importance	CMBC(CAFU)	BAP partners
Maintain up to date records of Priority Species	WYE	CMBC(CAFU), NE, HBC, WYE
Determine the conservation requirements of the lesser-known Priority Species	WYE	CMBC(CAFU), NE, HBC, RSPB
Issue amendments to the Species Audit annually and fully review in 2010	CMBC(CAFU)	HBC, HSS, RSPB, TNHS, UCWN
Encourage universities to conduct research into Priority Species	CMBC(CAFU)	Academic institutions
Highlight the status of Priority Species in reports	HBC / HSS	
5. Advisory		
Produce and distribute guidance notes outlining the conservation requirements of Priority Species	NE / WYE	FWAG, CMBC(CAFU), UU, YW
6. Regional		
7. Communication and publicity		
Raise awareness of the importance of Priority Species	CMBC(CAFU)	All BAP partners

Plan Co-ordinator

Hugh Firman, Countryside and Forestry Unit, Calderdale Council

3.4 Twite

Current Status

National

In 1999 the UK twite *(Carduelis flavirostris)* population was estimated at 10,000 pairs, more than 95% of which were in Scotland (SCARABBS, 1999). The English population is almost entirely confined to the South Pennines.

The twite is on the '*Red List of Birds of Conservation Concern*' because of its historical population decline. It is known to have undergone a significant fall in numbers recently but the full extent of this decline is unknown and, for this reason, it was not identified as a UK BAP Priority Species in 1995.

Regional

Evidence suggests that twite numbers in the region have declined consistently since the 1970s.

In the South Pennines a survey of 63 randomly selected 1 km squares were surveyed for breeding twite. The squares selected had been occupied by twite in a 1990 moorland bird survey. Less than 20% of the sample 1 km squares that recorded twite in 1990 also recorded them in 1999. Comparing twite records from moorland only squares surveyed in 1990 and 1999 we see decline of 50%. Thus the twite population was estimated at 415+ pairs in 1990 and by 1999 to around 215 pairs. There appears to be a contraction of breeding range especially obvious in the south – on the North Staffordshire Moors, and the eastern side of the Peak District. This retraction places further significance on the northern part of the South Pennines, including Calderdale. In 2002 efforts were made to collate twite records during the breeding season from keen birdwatchers active in the area. This was not a co-ordinated survey but it is useful to report the results. Unlike the 1999 survey the results include records from all habitats – including moorland, in-bye land (including feeding birds seen in hay meadows) and roadside and quarry sites. A total of 39 sites held a minimum of 226 birds.

Colour ringing has indicated that the majority of the Yorkshire Pennine population winters on saltmarshes around the Wash but it is thought that more westerly breeders move to the Lancashire coast. More colour ringing is underway to try to gain further information.

Local

Restricted to fringe of South Pennine Moors and adjacent grasslands.

Current factors causing loss or decline

The reason for the decline of the twite population is thought to be poor breeding success. Food sources are becoming scarcer which is probably reducing the number of second broods. Although there is no hard evidence, the only visible change in the upland fringe in the Calderdale District is the change from hay to silage production, thus reducing the variety of seeds available to the birds.

Twite need a succession of feeding sites throughout the breeding season. When they arrive from the coast they feed mainly on grass seeds – especially annual meadow grass (*Poa annua*), which can be found on farm tracks, quarry bottoms and reservoir edges. They also feed on the seed litter from purple moor grass (*Molinia caerulae*), found on the ground where tussocks have been burnt down. Twite also rely heavily on dandelion (*Taraxacum* spp) seeds when these develop. Later in the summer, as second broods are being fed, the chicks are fed on the seeds of sorrel (*Rumex acetosa* and *R. acetosella*) which are collected from hay meadows.

When adults are feeding their young, it is vital that abundant sources of sorrel seeds can be found within a reasonable distance of the moorland edge breeding sites. The estimated maximum distance from the nest site to feeding area is 2km. Once the young leave the nest, they and the parents group together in flocks and can exploit a variety of seeds such as dandelion (*Taraxacum* spp), thistles (*Carduus* and *Cirsium* spp) and cat's ear (*Hypochaeris radicata*).

As pasture and meadow management has intensified through larger numbers of stock the amount of seed available for twite has fallen; historically, the decline of working farm horses has also had an impact on the seed varieties available. Silage production frequently involves ploughing up fields and re-seeding with rye grass mixtures. Rye grass is not a good food source for twite, especially as cutting takes place too early in the summer to be of benefit. Likewise, heavily grazed pastures do not contain flowering grasses or sorrel.
As farms have specialised in sheep and beef production in the upland fringe, there has been a loss of mixed farming. Where oats were grown on mixed farms in the past, the stubble provided foraging areas for twite; flocks would over-winter in these areas and not migrate to the coast. Consequently winter survival rates may have been more successful. Turnips used to be grown for mixed stock and the broad-leaved weeds which grew among them would also provide a food source for twite during the winter months.

Increased stock numbers and loss of heather on the moorland fringe may have reduced suitable nesting sites.

More intensive management of roadside verges and grasslands around reservoirs before these areas have set seeds also deprives the twite of food.

Often the least productive land on the farm holds the remnant hay meadows or less intensively managed pastures. At the moment, farmers wanting better financial returns from such land receive better returns from the Woodland Grant Scheme than the Countryside Stewardship Scheme. Consequently some areas are being planted which would be suitable for twite, which is an open country species and will not adapt to woodland.
Twite generally construct their nests low down in bracken litter and could therefore be affected by bracken control programmes if an alternative choice of nesting habitat, such as heather, is not available.

Current Action

Research into the ecological requirements of twite has been carried out in West Yorkshire as part of an EU Life Project. An associated piece of work by the RSPB on upland farming and the environment has also been undertaken which looks at recent trends in upland farming, agri-environment schemes and the implications for twite.

A national breeding survey was carried out by the RSPB, EN (now NE) and JNCC in 1999. In the South Pennines areas surveyed by 'English Nature' in 1990 (Brown, A. et al 1991) were resurveyed in 1999 (Batty, A. et al 1999).

The DEFRA/RDS Countryside Stewardship Scheme can make payments to farmers to maintain existing species-rich hay meadows and manage pastures less intensively.
FC have commissioned EN (now NE) to produce a report identifying area unsuitable for tree planting around the fringe of the SPA.

EN (now NE) have commissioned a bird survey (to include twite) covering the in-bye land within 2km of the South Pennines SSSI boundary.

RSPB have been carrying out supplementary feeding at several key sites.

EN (now NE) have let a contract to East Anglia University to support a PhD study into the detailed ecology of Pennine twite. This involves evaluating wintering and breeding sites, colour ringing of chicks and adults and an evaluation of nest site selection.

Legal status

The twite is protected under the Wildlife and Countryside Act 1981.

In bye grasslands have some protection under EIA legislation.

Targets

- To maintain the breeding numbers and distribution (based on the 1999 survey) of twite in Calderdale.
- To restore breeding numbers and distribution to 1990 levels by 2010.

Actions

Action	Lead partner	Other partners
1. Policy and legislation		
Encourage DEFRA to target Stewardship at hay meadows and encourage local farmers to join CSS	RSPB	CMBC(CAFU), DEFRA/RDS, YWT, HBC, NE
Implement strategic policies for forestry which take into account the requirements of twite	FC	CBMC(CAFU), RSPB, HBC, Trees, WRF
Consider the impact on twite breeding/feeding sites when assessing planning applications	CMBC (DC)	CMBC (CAFU), EN, RSPB
Identify and designate breeding sites and key feeding areas as SEGIs / SSSIs	NE / WYE	RSPB, CMBC(CAFU,DP)
2. Site safeguard and management		
Manage reservoir sites and other upland and upland fringe land holdings for twite	YW	NE, CMBC(CAFU), DEFRA/RDS, HBC, RSPB
Encourage appropriate management of agricultural land through advice and targeting of agri-environment payments. In particular:- • Discourage intensification of hay meadows and permanent pastures • Encourage late cutting of grasslands, retention of uncut field margins and 'waste' corners • Encourage reductions in stocking numbers and timing of grazing to ensure setting of seeds by grasses and 'weeds' • Encourage the re-instatement of small arable plots, especially weedy root crops/oats, especially on 'improved' grasslands • Ensure that cutting or spraying of verges or reservoir embankments is not carried out during the twite breeding season • Encourage the retention of tall heather and bracken on the moorland fringe	FWAG	RSPB, CMBC(CAFU), DEFRA/RDS, NE, YW
Encourage sympathetic management of quarries and other derelict sites on the moorland fringe	CMBC (DC)	CMBC(CAFU), Mineral

		Companies
Ensure tree planting schemes do not conflict with important twite areas	FC	RSPB, NE, WRF, CMBC(CAFU)
Encourage late cutting of amenity grasslands in twite areas to ensure dandelions survive to set seed	CMBC	YW
Investigate and support supplementary feeding projects, where appropriate	RSPB	CBMC, HBC, YW
3. Species management and protection		
4. Advisory		
5. Research and monitoring		
Collate existing twite records and identify gaps in knowledge	WYE	CMBC(CAFU), NE, RSPB, HBC
Undertake comprehensive survey of range and populations of twite and associated habitats using standardised and repeatable methodology every 5 years	RSPB	CMBC(CAFU), NE, HBC, WYE
Establish and maintain a database of all breeding sites including details of the condition of associated habitats and potential expansion areas. Make information available to decision makers, key partners, the NBN, and landowners	WYE	CMBC(CAFU), NE, HBC, RSPB
Encourage naturalists to identify suitable feeding areas	HBC	HSS, RSPB, TNHS, UCWN
Encourage naturalists to submit records and participate in surveys	HBC	HSS, RSPB, TNHS, UCWN
Use colour-ringing of breeding birds to establish origins	RSPB	NE, BTO, local ringers
Produce distribution map of twite populations	WYE	RSPB
Develop links with universities and encourage research on twite and associated wildlife	RSPB	CBMC(CAFU), NE, Academic institutions
Establish the optimum management of hay meadows to encourage sorrel in the sward	RSPB	DEFRA/RDS, NE
Assess the long term viability of supplementary feeding	RSPB	BTO

6. Communication and publicity		
Improve public awareness of the twite and other upland birds and associated habitats	RSPB	All BAP partners
Develop and implement programme to encourage horse-owners to continue hay production in twite areas through articles in equestrian magazines and contact with local organisations	RSPB	FWAG
Publicise existing sites demonstrating good practice in the management and conservation of upland birds and their habitats ensuing information is widely available to landowners / managers	RSPB	All BAP partners

Plan Co-ordinator

Chris Tomson, RSPB

3.5 Water Vole

Current Status

National

The water vole (*Arvicola terrestris*) is found throughout Britain but the population has suffered a long term decline since 1900. There has been a period of accelerated loss since the 1980s; a national survey in 1989-90 failed to find voles in 67% of the sites where they were previously recorded and this trend is likely to continue. The stronghold is generally in the south and east of Britain, with populations in the north and west scarce and fragmented.

The water vole was once common along vegetated river banks, canals, ditches, lakes and ponds. Water voles are herbivores, feeding on the lush stems and leaves of waterside plants. Over the winter they survive on a diet of the roots and bark of woody species such as willow, as well as rhizomes, bulbs and roots of herbaceous plants. In autumn they will eat berries and fruits.

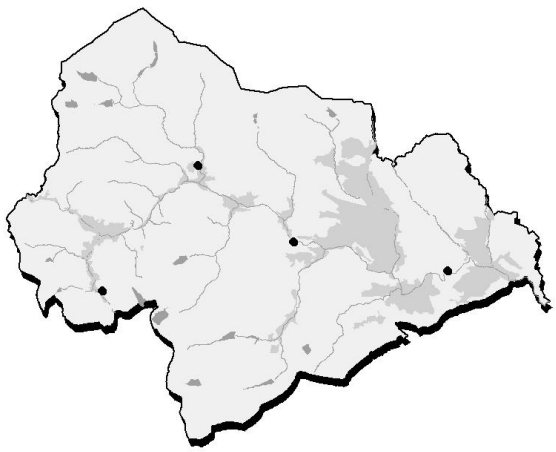
Regional

There is a healthy population of water voles in east Yorkshire. The population in West Yorkshire is currently under threat from both habitat loss and predation by mink. In comparison the water vole population of Rotherham in South Yorkshire has not been affected by such predation and are more numerous in this area.

West Yorkshire Ecology have more water vole records for the east of West Yorkshire but this may reflect the amount of survey work carried out in Leeds and Wakefield rather than the true status of the population.

Local

A few years ago, mink were set free from mink farms and have established themselves throughout Calderdale's watercourses. Water voles have been reported from Cromwell Bottom, Rochdale Canal, Hebden Water, Warland Weir and Walsden Water in recent years. Recent records of water voles from upland parts of the Peak District and Kirklees suggest that water voles are under-recorded in upland parts of Calderdale.



Current factors causing loss or decline

- Habitat loss and degradation due to insensitive engineering and maintenance works on rivers and ditches, urbanisation of the flood plain, heavy grazing pressure of waterside habitats, lack of or inappropriate management of river banks
- Disturbance of riparian habitats by recreational activities
- Predation by mink, rats (taking young) and domestic cats is likely to be a significant cause of population decline in Calderdale
- Pollution from industrial and agricultural based effluents and insecticides
- Poisoning by rodenticides used to control the brown rat (often unintentional because water vole are easily mis-identified as rats)

Current action

- A national Species Action Plan has been prepared with targets to ensure that water voles are present throughout their 1970s range, by the year 2010 and to maintain the current distribution and abundance of the species in the UK
- The Vincent Wildlife Trust conducted a national survey in 1989-90
- WYE have commissioned a survey of water voles in West Yorkshire during 2000-2002
- Countryside Stewardship Scheme for Watersides allows for the creation of habitats suitable for water voles

Legal status

The water vole is currently protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally or recklessly damage, destroy or obstruct any place or structure which water voles use for shelter or protection or to disturb them while using such a place.

Targets

- Maintain the current distribution and abundance of the water vole in Calderdale

Actions

Action	Lead Partner	Other partners
1. Policy and legislation		
Uphold the Wildlife and Countryside Act 1981 (as amended), Section 9(4) in respect of the protection of water voles	EA	CMBC (CAFU), CMBC (DC), NE, WYE, WYP
Consider the impact on water voles when assessing planning applications	CMBC (DC)	CMBC (CAFU), EA
Take opportunities through the planning system to restore or create water vole habitats. Explore possibilities of long term management agreements	CMBC (DC)	CMBC (CAFU), EA
Identify and designate key colonies as SEGIs	WYE	CMBC(CAFU), CMBC (DP), YWT
Promote wider awareness of the MAFF 'Code of Good Agricultural Practise for Protection of Water'	DEFRA/RDS	FWAG, EA
2. Site safeguard and management		
Include the needs of water voles in the management of SSSIs or other designated wildlife sites	NE	CMBC (CAFU), BW, CLA, NFU
Avoid damage of existing or potential water vole habitat by development, drainage or maintenance work such as culverting, channelisation, sheet piling or other hard bank protection works	EA	BW, CMBC (CAFU,DC), WYE
Explore opportunities for creating suitable habitats under the Countryside Stewardship Scheme and planning gain for restoring watercourses to a more natural structure	DEFRA / RDS	FWAG, CMBC (CAFU), EA, CLA, NFU, YWT
Produce management briefs for key colonies, to include measures to protect and expand the population.	CMBC(CAFU)	EA, NE, HSS, UCWN, WYE, YWT
3. Species management and protection		
Establish the effects of mink predation and encourage their control where appropriate	EA	CMBC (CAFU), YWT

Discourage the illegal use of rodenticides and herbicides where water voles would be affected	DEFRA	EA, YWT
Take opportunities to enhance / create water vole habitats near to existing colonies	EA	CMBC (CAFU), BW, YWT
Seek funding to carry out conservation work and habitat creation	CMBC (CAFU)	All partners
4. Advisory		
Promote the benefits of watercourse buffer strips to landowners and managers, including their value as water vole habitat	FWAG	NE, EA, CMBC (CAFU), YWT
Provide advice to relevant authorities and owners on conservation of the species	EA	CMBC (CAFU), NE, FWAG, HSS, UCWN, YWT
5. Research and monitoring		
Conduct surveys to establish the distribution of both the water vole and mink and identify key populations of water voles for conservation	WYE	EA, NE, CMBC(CAFU), HSS, UCWN, TNHS
Pass information gathered from surveying and monitoring to the NBN	WYE	CMBC (CAFU)
6. Regional		
Work with neighbouring local authorities and regional partners to improve opportunities for joint working	EA	BW, CMBC (CAFU), NE, WYE, YWT
7. Communication and publicity		
Promote the water vole through the local press, leaflets and displays. Stress the difference between water voles and rats and the effects of inappropriate works and human disturbance on river banks	CMBC (CAFU)	ATC, EA, NE, YWT, HSS, TNHS, UCWN
Raise awareness of the damage caused by mink to water voles and other wildlife	CMBC (CAFU)	NE, FWAG, WYE, YWT

Plan co-ordinator

Brian Lavelle, Yorkshire Wildlife Trust

3.6 Pink Waxcap Fungi

Introduction

The pink waxcap's *(Hygrocybe calyptriformis*) main habitats include lawns, grassy meadows, pastures and woodland margins. It has been recorded from limestone grassland and acid grassland. Fruiting bodies, which are seldom abundant, generally appear between August and October. They have attractive pointed caps 5 -7 cm tall and a white or pinkish stem up to 10 cm tall. It is one of a group of the often-brightly coloured waxcap fungi (Hygrocybe spp.) which are typically associated with unimproved grassland and are reported to have declined across Europe.

Current Status

National

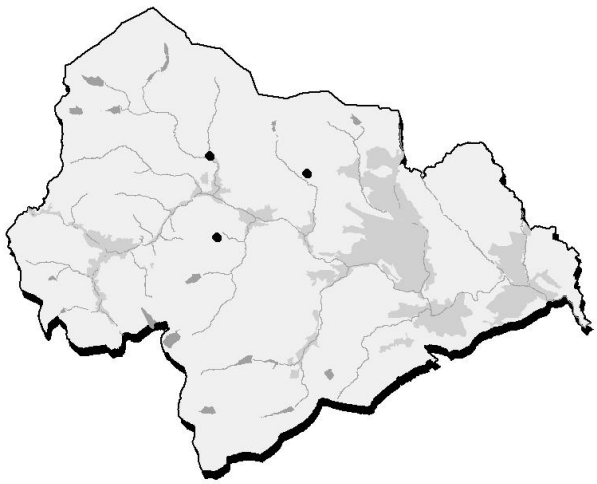
The number of sites for this species is now known to total 500 as a result of the British Mycological Society's survey. It has been found in Scotland, Wales, Oxfordshire, North Yorkshire, Kent and Worcestershire. A large population is known from a MoD artillery range at Brecknock. Elsewhere the species is found in continental Europe, North America and Asia.

In Great Britain this species is provisionally classified as Low Risk. It receives general protection under the Wildlife and Countryside Act 1981 and is also on the provisional Berne List.

Regional

There are scattered records throughout Yorkshire for this species, all of them limited to unimproved grassland. The Mid Yorkshire Fungus Group is conducting a survey for this species to feed into the national database.

Local



At present restricted to three sites in the district, this species meets the criteria of a Calderdale Priority Species. All three sites are unimproved acid grassland.

Current factors causing loss or decline

- Historic changes in the population of this species are poorly understood, but potential threats to extant sites include:
- Improvement of it's grassland habitat through ploughing or addition of fertilisers.
- Reduction in the levels or cessation of grazing or mowing leading to growth of rank vegetation and woody species.

Current Action

- The British Mycological Society (BMS), is undertaking a 'waxcap grassland' survey, which began in 1996.
- Plantlife has also started a waxcap survey (2002) that has been extended to the 2003 season.
- Members of Halifax Scientific Society monitor the known current sites in the district.

Targets

- Maintain the current distribution and abundance of waxcaps in Calderdale.

Actions

Action	Lead Partner	Other partners
1. Policy and Legislation		
Consider designating sites with waxcaps as SEGIs	WYE	CMBC(CAFU), CMBC (DP), HSS
2. Site safeguard and management		
Where possible, provide mechanisms (such as relevant agri-environmental schemes) to encourage grazing or continued mowing on waxcap sites	FWAG	DEFRA
3. Research and monitoring		
Compile records of waxcap and encourage regular visits to known sites in order to determine the current status of the species at each site. An assessment of management and current threats should be made at each site	HSS	MYFG, WYE
Commission research into the habitat	NE	

requirements and methods of spread of this species, with a view to refining management techniques for its conservation		
Perform surveys on other unimproved grassland sites likely to have waxcaps	HSS	MYFG
Train/encourage naturalists to report records	HSS	MYFG
4. Advisory		
Advise landowners and land managers of the presence and importance of this species, specific management for conservation and any potentially damaging actions. Landowners and managers should have access to specialist advice if needed	HSS	NE, DEFRA, WYE
As far as possible advise relevant agri-environment scheme project officers of the location for this species and the need to encourage appropriate grazing regimes at these sites	WYE	DEFRA, NE
5. Regional		
6. Communication and publicity		
Encourage mycologists to pass all records of pink meadow cap, including ecological information, to regional and national databases	HSS	BMS, CMBC(CAFU), MYFG, WYE
Provide publicity to general public to encourage them to report possible sites	HSS	
Raise awareness of the importance of this species	HSS	CMBC(CAFU), ATC

Links with other action plans

Unimproved Grassland

Plan Co-ordinator

Hugh Firman, Conservation Officer
National Lead Partner - Plantlife

4.IMPLEMENTATION and MONITORING

4.1 Implementation

An essential part of the Local Biodiversity Action Plan consists of putting the proposed actions into effect. Many actions will require a substantial input of time and resources although in many cases substantial progress can be made by adjusting priorities. It is recommended that organisations review their work programmes and strategies to ensure that they can contribute towards the delivery of the BAP. Subsequent actions with longer-term goals can be developed in the light of the progress which has been made. This is the whole basis for the plan as an evolving process. Partnership working is fundamental to the success of the BAP and it is vital that close links are established between organisations working on the same Action Plan. In some cases this may necessitate working groups, while in others a more informal arrangement, such as email groups, may be sufficient. To help this process a list of key contacts is provided in Appendix 2. Annual workshops are planned. These will enable partners to share knowledge, celebrate achievements and identify future action. Appendix 3 illustrates some of the actions you as an individual or community group can do to benefit biodiversity.

4.2 Monitoring

A Steering Group will be created to oversee the implementation of the BAP. This group will meet every six months, subject to review and will include senior representatives from key organisations. The Steering Group will be supported by a Technical Group, consisting of representatives from Calderdale Council's Countryside and Forestry Unit, Natural England, Halifax Scientific Society and West Yorkshire Ecology. In monitoring the progress and the effectiveness of the plan it may be helpful to identify possible problems at an early stage so that these may be addressed and hopefully ways found to overcome them. Therefore, partners will be asked to provide yearly updates for the action points for which they are responsible. Plan Co-ordinators will collate brief Annual Reports, which in turn will provide the basis for an Annual Review.

It will be essential for all Partners, community groups and individuals to forward data to the ecological databases held by Calderdale Council and West Yorkshire Ecology if the full potential of the plan is to be realised.

4.3 Consultation

Partnership and a committed ownership is an important aspect of Calderdale's BAP. For this reason local people and organisations with the capacity to deliver the BAP are being consulted. All key partners have a responsibility to consult widely within their own organisations on implementing the Plan.

APPENDIX 1 Calderdale Priority Species

Please note this list is now out of date, for a complete list, please see the latest Species Audit.

Mammals

Brandt's bat	Myotis brandtii
Brown hare	Lepus europaeus
Brown long-eared bat	Plecotus auritus
Daubenton's bat	Myotis daubentonii
Leisler's bat	Nyctalus leisleri
Natterer's bat	Myotis nattereri
Noctule	Nyctalus noctula
Otter	Lutra lutra
Soprano pipistrelle bat	Pipistrellus pygmaeus
Water shrew	Neomys fodiens
Water vole	Arvicola terrestris
Whiskered bat	Myotis mystacinus
European Hedgehog	Erinaceus europaeus

Birds

Black-headed gull	Larus ridibundus
Bullfinch	Pyrrhula pyrrhula
Common crossbill	Loxia curvirostra
Common redstart	Phoenicurus phoencurus
Cuckoo	Cuculus canorus
Curlew	Numenius arquata
Dunlin	Calidris alpina
Dunnock	Prunella modularis
Goldcrest	Regulus regulus
Golden plover	Pluvialis apricaria
Grasshopper warbler	Locustella naevia
Great-crested grebe	Podiceps cristatus
Green woodpecker	Picus viridis
Grey partridge	Perdix perdix
Grey wagtail	Motacilla cinerea
Hen harrier	Circus cyaneus
Hobby	Falco subbuteo
House martin	Delichon urbica
House sparrow	Passer domesticus
Kestrel	Falco tinnunculus
Kingfisher	Alcedo atthis
Lapwing	Vanellus vanellus
Lesser redpoll	Acanthis flammea
Lesser spotted woodpecker	Dendrocopus minor

Lesser whitethroat	Sylvia curruca
Linnet	Carduelis cannabina
Little ringed plover	Charadrius dubius
Long-eared owl	Asio otus
Meadow pipit	Anthus pratensis
Merlin	Falco columbarius
Mistle thrush	Turdus viscivorus
Oystercatcher	Haematopus ostralegus
Peregrine	Falco peregrinus
Pied flycatcher	Ficedula hypoleuca
Raven	Corvus corax
Red grouse	Lagopus lagopus
Redshank	Tringa totanus
Reed bunting	Emberiza schoeniclus
Ring ouzel	Turdus torquatus
Ringed plover	Charadrius hiaticula
Sand martin	Riparia riparia
Shelduck	Tadorna tadorna
Short-eared owl	Aslo flammeus
Skylark	Alauda arvensis
Snipe	Gallinago gallinago
Song thrush	Turdus philomelus
Spotted flycatcher	Muscicapa striata
Starling	Sturnus vulgaris
Stock dove	Columbia oenas
Stonechat	Saxicola torquata
Swallow	Hirundo rustica
Teal	Anas crecca
Tree pipit	Anthus trivialis
Tree sparrow	Passer montanus
Tufted duck	Aythya fuligula
Turtle dove	Streptopelia turtur
Twite	Carduelis flavirostris
Water rail	Rallus aquaticus
Whinchat	Saxicola rubetra
Willow tit	Parus montanus
Willow warbler	Phylloscopus trochilus
Wood warbler	Phylloscopus sibilatrix
Woodcock	Scolopax rusticola
Yellow wagtail	Motacilla flava flavissima
Yellowhammer	Emberiza citrinella

Reptiles and Amphibians

Common Frog	Rana temporaria

Common Lizard	Lacerta vivipara
Common Toad	Bufo bufo
Grass Snake	Natrix natrix
Palmate Newt	Triturus helveticus
Smooth Newt	Triturus vulgaris

Butterflies and Moths

A Micro moth	Gynnidomorpha alismana
A Micro moth	Phyllonorycter platanoidella
A Micro moth	Prays fraxinella f. rustica
A Micro moth	Pammene fasciana
A Micro moth	Grapholita lunulana
A Micro moth	Stenoptillia millierdactyla
Autumnal Rustic	Eugnorisma glareosa
Barred Hook-tip	Drepana falcataria
Chimney Sweeper	Odezia atrata
Cream-bordered Green Pea	Earias chlorana
Dark Green fritillary	Argynnis adippe
Dark Spinach	Pelurga comitata
Dark-barred Twin-spot Carpet	Xanthorhoe ferrugata
Double Dart	Graphiphora augur
Dusky Thorn	Ennpmos fuscantaria
Dusky-lemon Sallow	Xanthia gilvago
Emperor Moth	Saturnia pavonia
Feathered Ranunculus	Polymixis flavicincta
Figure of Eight	Diloba caeruleocephala
Garden Dart	Euxoa nigricans
Ghost Moth	Hepialis humili
Golden-Rod Brindle	Lithomoia solidaginis
Grass Rivulet	Perizoma albulata
Hedge Rustic	Tholera cespitis
Latticed Heath	Chiasmia clathrata
Northern Egger	Lasiocampa quercus
Orange Underwing	Archiearis parthenias
Red Sword Grass	Xylena vetusta
Scarce Silver Y	Syngrapha(Plusia) interrogationis
September Thorn	Ennomos erosaria
Small Copper	Lycaena phlaes
Spinach	Eulithis melinata
Sword Grass	Xylena exsoleta
The Butterbur	Hydraecia (Gortyna) petasitis
The Wormwood	Cucullia absinthii
V-Moth	Macaria wauaria
White-letter Hairstreak	Satyrium w-album

White-line Dart	Euxoa tritici
Wood Tiger	Parasemia plantaginis

Beetles

Agabus arcticus	Water Beetle
Ancistronycha abdominalis	Blue Soldier Beetle
Ancistronycha(Cantharis) abdominalis	Beetle
Anotylus matador	Beetle
Aphodius lapponum	Chafer
Atheta aquatillis	Beetle
Atheta intermedia	Beetle
Badister unipustulatus	Beetle
Barynotus squamosus	Beetle
Bembidion clarki	Beetle
Bembidon fumigatum	Beetle
Bembidon gilvipes	Beetle
Bembidon obliquum	Beetle
Bolitochara mulsanti	Beetle
Cercyon convexlusclus	Beetle
Cercyon lugubris	Beetle
Cis lineatocribratus	Beetle
Cneorhinus plumbeus	Weevil
Dinarda maerkeli	Beetle
Dromus sigma	Beetle
Dryocoetinus alni	Bark Beetle
Enicmus fungicola	Beetle
Gabrius bishopi	Beetle
Grypus equiseti	Beetle
Hydroporus morio	Water Beetle
Hylecoetus dermestoides	Timber Beetle
Hyperaspis pseudopostulata	Ladybird
Laccobius sinuatus	Beetle
Leptusa norvegica	Beetle
Mantra rustica	Beetle
Melasis buprestoides	Beetle
Notaris bimaculatus	Weevil
Notaris scripl	Weevil
Notiophilus quadripuntatus	Beetle
Ocypus fuscatus	Beetle
Oreodytes davisii	Water Beetle
Oxypoda formiceticola	Beetle
Psylliodes chalcomera	Beetle

Rhantus suturellus	Water Beetle
Rhizophagus nitidulusricius	Beetle
Rhizophagus picipes	Beetle
Stenus europaeus	Beetle
Stenus nivens	Beetle
Stictonectes lepidus	Water Beetle
Thiasophila angulata	Beetle
Trechus discus	Beetle
Trechus rubens	Beetle
Zyras humeralis	Beetle

Crustacea

White-clawed crayfish	Austropotamobius pallipes

Molluscs

Ferrnssis(Pettancylus) clessiniana = Ferrissia wautieri
Omphiscola glabra+Lymnaea glabra

Diptera

Leptopeza borealis	Hybotid fly
Cheilosia ranunculi	Hoverfly
Cheilosia mutabilis	Hoverfly
Leucozonia glaucia	Hoverfly
Chrysotoxum arcuatum	Hoverfly
Heringia (Neocnemodon) verrucula	Syrphid fly
Spania nigra	Rhagionid fly
Manota unifurcata	Fungus Gnat
Mycetophila abjecta	Cranefly
Neutratelia nigricornis	Cranefly
Dicranota exclusa	Cranefly
Pedicia occulta	Cranefly
Pedicia rivosa	Cranefly
Scleroprocta sorocula	Cranefly
Limnophila trimaculata	Cranefly
Limonia aquosa	Cranefly
Paradelphomyia nielseni	Cranefly
Pilaria fuscipennis (Mg)	Cranefly
Ctenophora(s.g.Tanyptera) nigricornis	

Cynipid Wasps

Trybliographa cubitalis	Gall Wasp
Trybliographa graciocornis	Gall Wasp

Formicidae

Myrmica lobicornis	Ant
Myrmica sabutei	Ant
Myrmica sulcinodis	Ant
Formica lugubris	Hairy Wood Ant (Northern)
Formicoxenus nitidulus	Ant
Formica rufa	Red Wood Ant

Chrysididae

Omalus aeneus	Solitary wasp

Eumenidae

Ancistrocerus antilope	

Sphecidae

Crossocerus walkeri	Solitary wasp
Crossocerus binotatus	Solitary wasp
Crossocerus palmipes	Solitary wasp

Andreninae

Andrena varians	Solitary bee
Andrena humilis	Solitary bee

Apidae

Bombus soroeenis	Bee
Bombus rupestris (Psithyrus rupestris)	Bee
Bombus magnus	Bee
Bombus jonellus	Bee
Psithyrus barbutellus	Bee

Vascular Plants

Alternate water-milfoil	Myriophyllum alterniflorum
Alt-leaved golden saxifrage	Chrysosplenium alternifolium
Annual Knawell	Seleranthus annuus spp. Annuus
Annual Pearlwort	Sagina apetala Ard.spp.erecta
Autumn crocus	Crocus nudiflorus
Autumn gentian	Gentianella amarelle
Bay willow	Salix pentandra
Bee orchid	Ophrys apifera
Bog pimpernel	Anagallis tenella
Bog speedwell	Veronica scutellata
Brittle bladder-fern	Cystopteris fragilis

Common fumitory	Fumaria officinalis
Common Water-crowfoot	Ranunculus aqualtilis
Creeping willow	Salix repens
Creeping yellow-cress	Rorippa sylvestris
Des Etang's St John's wort	Hypericum x desetangsii
Floating water plantain	Luronium natans
Frog orchid	Coeloglossum viride
Globe flower	Trollius europaeus
Goldilocks Buttercup	Rannunculus auricomus
Great horsetail	Equisetum temateia
Greater tussock-sedge	Carex paniculata
Hairlike pondweed	Potamogeton trichoides
Heath cudweed	Gnaphalium sylvaticum
Horned pondweed	Zannichellia palustris
Imperforate St John's wort	Hypericum maculatum
Int enchanter's-nightshade	Circaea x intermedia
Lesser skullcap	Scutellaria minor
Marsh stitchwort	Stellaria palustris
Marsh valerian	Valeriana dioica
Milk Parsley	Peucedanum palustre
Mountain currant	Ribes alpinum
Mountain melick	Melica nutans
Narrow buckler-fern	Dryopteris carthusiana
Needle spike-rush	Eleocharis acicularis
Pale forget-me-not	Myosotis stolonifera
Purple milk-vetch	Astragalus danicus
Rough horsetail	Equisetum hyemale
Round-leaved wintergreen	Pyrola rotundifolia ssp,rotundifolia
Royal fern	Osmunda regalis
Shepherd's Needle	Scandix pectin-veneris
Sherard's downy-rose	Rosa sherardii
Soft shield fern	Polystichum setiferum
Spignel	Meum athamanticum
Stag's-horn clubmoss	Lycopodium clavatum
Stone bramble	Rubus saxatilis
Sweet Violet	Viola odorata
Trailing St John's Wort	Hypericum humifusum
Wall pennywort	Umbilicus rupestris
Water chickweed	Myosoton aquaticum
Wood barley	Hordelymus europaeus
Wood crane's-bill	Geranium sylvaticum
Yellow bird's-nest	Monotropa hypopitys

Mosses

Bartramia ithyphylla	
Bryum alpinum	
Dicranella subulata	
Dicranodontium denudatum	
Drepanocladus revolvens	
Fissidens dubius	
Fissidens osmundoides	
Grimmia donniana	
Orthothecium intricatum	
Philontis calcarea	
Plagiothecium latebricola	
Racomitrium ericoides	
Rhizomnium pseudopunctatum	
Seligeria donniana	
Tortella tortuosa	
Weissia rostellata	Beaked Beardless Moss

Liverworts

Frullania tamarisci	
Jubula hutchinsiae	
Jungermannia caespiticia	
Lejeunea cavifolia	
Lejeunea lamacerina	
Lepidozia cupressina	
Lophozia incisa	
Metzgeria conjugata	
Mylia taylori	
Prorella platyphylla	
Scapania nemorea	
Scapania umbrosa	
Trichocolea tomentella	

Fungi

Amanita phalloides	Death Cap
Clavaria straminea	Straw Club
Geoglossum fallax	Earthtongue
Gyromitra esculenta	False Morel
Hygrocybe calyptriformis	*Pink Waxcap*
Hygrocybe spadicea	Date Coloured Waxcap
Leccinum holopus	Ghost Bolete
Phylloporus pelletieri	
Pucciniastrum goeppertianum	
Strobilomyces strobilaceus	Old Man of the Woods

Lichens

Bacidia arnoldiana
Bryoria bicolor
Cetraria islandica
Cladonia impexa
Cladonia rangiferina
Collema nigrescens
Dimerella pineti
Icmadophila ericetorum
Lepraria neglecta
Lepraria zonata
Peltigera canina
Phaeographis dendritica
Placynthiella dasaea
Ramalina calicaris
Teloschistes flavicans
Umbilicaria proboscoides

APPENDIX 2 - Calderdale Local Biodiversity Action Plan Partners

Alternative Technology Centre

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Sustainable Landscape Architect/Garden Co-ordinator
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- Co-ordinator of Ecological Display Gardens at the Alternative Technology Centre.
- Advisor and consultant on Ecological Gardening.
- Co-ordinator of displays and information on Ecological issues.
- Co-ordinator of Biodiversity ('Earthworks') Project.

The Alternative Technology Centre is situated along the Rochdale Canal in Hebden Bridge. Our objective is to make sustainability achievable and simply irresistible. Working from a strong base in the community the ATC provides inspiration, accessible information and advice, practical, innovative and exciting examples. We aim to enable people to improve all aspects of their lives and their environment and to do it sustainably.

British Waterways – Yorkshire Business Unit

Jonathan Hart-Woods, Environment and Heritage Manager
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phillippa.baron@britishwaterways.co.uk

- Plan co-ordinator for canals in Yorkshire
- Advisor on British Waterways' BAP for the Calder and Hebble Navigation
- Advisor on British Waterways' Tree Management Plan for the Calder and Hebble Navigation

British Waterways' Yorkshire Business Unit Ecologists provide advice on conservation and management of protected species and habitats and waterway biodiversity issues on the canals throughout the Yorkshire region.
BW is the lead partner for the UK Action Plan for floating water plantain.

BSBI

Geoffrey Wilmore – Consultant Ecologist

BSBI VC Recorder for VC63
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BTCV

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First point of contact for BTCV in West Yorkshire.

We can offer practical help and training in conservation skills to help people to implement biodiversity projects.
Our help costs money, but we can also advise on grants that are available.
BTCV is currently administering one of the NOF Greenspace projects called People's Places which could be used to implement practical community biodiversity projects in areas of deprivation.

Butterfly Conservation

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Calder Future

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Calderdale Forward/Environment Partnership

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Calderdale Metropolitan Borough Council

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- Co-ordination of production and implementation of BAP
- Provision of ecological advice
- Management of ecological database
- Plan Co-ordinator for Priority Species

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- Plan Co-ordinator for Native Woodlands

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DEFRA / RDS

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Environment Agency

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Farming and Wildlife Advisory Group (FWAG)

FWAG
Ann Hanson
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- conservation advice to farmers and landowners
- help with grant applications
- events, workshops, training
- membership

Forestry Commission

Mick Hoban
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Halifax Birdwatchers Club

Nick Carter, Chairman, Conservation Committee
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Nick Dawtrey, Recorder
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An informal network of people interested in birds with no official membership. Collects and collates records and publishes an annual report. The Conservation Committee is a sub group concentrating on local bird related conservation issues. Informal get togethers for birders are held on the 2nd Tuesday of each month in the Barge and Barrel Pub at Elland Bridge. The Club is keen to receive sightings from as many people as possible and all contributors to the report are acknowledged.

Halifax Scientific Society

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Knott Wood Coppicers

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Fax: 01422 843222
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www.three-ridings.org/knottwood.htm
A small workers co-operative working in local woodlands and with various environmental projects. We are involved in forestry, tree planting and various aspects of site development including access improvements, stock proofing and living willow installations. We also give demonstrations of green wood working skills including pole lathe turning and sell locally produced woodland products such as charcoal.

Mid Yorkshire Fungus Group

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National Trust

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NFU

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- Plan co-ordinator for Twite

Todmorden Natural History Society

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Treesponsibility

Penny Eastwood
PO Box 38, Hebden Bridge, HX7 8YR
Email: trees@riseup.net
treesponsibility@yahoo.co.uk
www.treesponsibility.com
Treesponsibility offers people a positive way to recycle their personal Carbon dioxide emissions into new woodlands and hedgerows. The group's

"After the Flood, the Forest" project aims to establish tree cover on steep hillsides at the head of the Upper Calder Valley as a natural form of flood protection.

Upper Calderdale Wildlife Network

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United Utilities

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West Yorkshire Bat Group

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Voluntary group dedicated to the conservation of bats in West Yorkshire.

West Yorkshire Ecology

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- Data requests and new ecological records

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Yorkshire Wildlife Trust

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- Plan co-ordinator for water voles

APPENDIX 3 - Action that YOU can take

Conservation starts at home and it is everyone's responsibility to play his or her part, however small.

There are several things you can do to help increase Biodiversity in Calderdale.

In your garden

plant some native trees or shrubs

put up a nesting box

provide a regular supply of food and water for birds

build a habitat pile of old logs and branches

plant a hedge of native species

build a garden pond

leave some weeds and long grass for the benefit of insects

plant some shrubs and flowers to attract butterflies

at a garden centre look for native plants of proven origin

create your own compost using waste from the kitchen and garden

create a wildflower meadow - use seed collected in the UK

build a drystone wall - it provides shelter and habitat for animals and plants such as mosses

do not use peat

In the Community

join a wildlife group

encourage your local community Council or Residents Association to adopt or manage an area for wildlife

help your local school to create a wildlife area in the school grounds

encourage your local Golf Club to take part in Wildlife Management Practices

join volunteer conservation projects with organisations such as the Countryside and Forestry Unit

In the workplace

Many of the actions we take as individuals can be translated into larger schemes. New or existing office and factory developments offer many opportunities to improve biodiversity. You can:-

plant groups of native trees and shrubs

allow some areas of grass to grow and flower - this helps insects and birds

create a water feature as part of a landscaping scheme

consider a 'bog garden' if safety means a pond is unsuitable

retain some existing areas of habitat as part of a landscaping scheme - it need not look untidy and it will benefit wildlife and save money!

create a wildflower meadow and ensure it is managed by cutting in the late summer

try to avoid large areas of mown grass and single ornamental trees - there is little wildlife value in short grass

try to include shrubs and plants to attract butterflies and birds - many are attractive and practical for inclusion in planting schemes.

incorporate bird boxes and bat refuges into new buildings or converted old buildings

support local initiatives to plant trees and create wildlife areas in Calderdale.

Abbreviations

ATC	Alternative Technology Centre
BAP	Biodiversity Action Plan
BMS	British Mycological Society
BSBI	Botanical Society of the British Isles
BTO	British Trust for Ornithology
BW	British Waterways
CF	Calder Future
CFd	Calderdale Forward
CLA	County Landowners and Business Association
CMBC (CAFU)	Calderdale Metropolitan Borough Council (Countryside and Forestry Unit)
CMBC (DC)	Calderdale Metropolitan Borough Council (Development Control)
CMBC (DP)	Calderdale Metropolitan Borough Council (Development and Policy)
CS	Countryside Stewardship
DEFRA	Department of the Environment, Food and Rural Affairs
EA	Environment Agency
EN	English Nature
FC	Forestry Commission
FSC	Forest Stewardship Council
FWAG	Farming and Wildlife Advisory Group
HAP	Habitat Action Plan
HBC	Halifax Birdwatchers Club
HSS	Halifax Scientific Society
IAW	Inventory of Ancient Woodland
ITE	Institute for Terrestrial Ecology
KWC	Knott Wood Copicers
LNR	Local Nature Reserve
MYFG	Mid Yorkshire Fungus Group
NBN	National Biodiversity Network
NE	Natural England
NFU	National Farmers Union
NVC	National Vegetation Classification
NT	National Trust
RDS	Rural Development Service
RSPB	Royal Society for the Protection of Birds
SAP	Species Action Plan
SCOSPA	Standing Conference of South Pennine Authorities
SEGI	Site of Ecological or Geological Importance
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
TNHS	Todmorden Natural History Society
TPO	Tree Preservation Order

Trees	Treesponsibility
UCWN	Upper Calderdale Wildlife Network
UU	United Utilities
WYE	West Yorkshire Ecology
YW	Yorkshire Water
WRF	White Rose Forest
WYP	West Yorkshire Police
YWT	Yorkshire Wildlife Trust

Glossary

Ancient woodland
Sites which have had continuous woodland cover since AD 1600 to the present day, though some sites may have been replanted at some point in the past

Countryside Stewardship (CS)
A grant aid package administered by DEFRA / RDS

Eutrophication
The over-enrichment of an aquatic habitat with inorganic nutrients, typically from sewage discharge or agricultural chemicals.

National Vegetation Classification (NVC)
A system used to identify different vegetation types

Natural Area
A concept, introduced by English Nature, for defining areas based on their characteristic wildlife, landscape and geology

Site of Ecological or Geological Importance (SEGI)
A site of local importance for wildlife or geology

Site of Special Scientific Interest (SSSI)
An area of land or water notified by a statutory conservation agency under the Wildlife and Countryside Act 1981 as being of national nature or geological conservation importance

Special Protection Area (SPA)
A site of international importance for birds designated under the Birds Directive by the UK Government

Tree Preservation Order (TPO)
An order made by the local planning authority which, in general, makes it an offence to cut down, top, lop, uproot wilfully damage or destroy a tree without the planning authority's permission

Unitary Development Plan (UDP)
A document setting out the strategic framework for the use of land and detailed policies and specific proposals for development

Wildlife site
A site of wildlife importance such as a SEGI or SSSI

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SCARABBS (1999). National Survey of Twite *RSPB/Joint Nature Conservation Council/English Nature.*

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Canals – Jonathan Hart-Woods, Jason Leach and Marie Millward, British Waterways

Native woodland – Jefferson Hammond, Countryside Service, Calderdale Council

Unimproved grasslands – Tim Kohler, Natural England

Upland heathland and Blanket bog – Paul Duncan, Natural England

Rivers and Streams – sg

Urban – se

Ancient Trees - serg

Priority Species – Hugh Firman, Countryside Service, Calderdale Council

Pink waxcap - Colin Duke, Halifax Scientific Society

Twite – Tim Cleeves, RSPB

Water vole – Hugh Firman (based substantially on a version prepared by Anne Heeley, Countryside Service, Bradford Council with additional assistance from Brian Lavelle, Yorkshire Wildlife Trust)

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