

**Relevant Habitat and Species Durham Biodiversity Action Plans**

**Woodland and Scrub Action Plan**

WO2

Lead Partner: *John Durkin*. [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

Priority habitats or species:

<b>Ancient Semi-Natural Woodland (including Planted Ancient Woodland - PAWS) Other Broadleaf Woodland Wet Woodland Scrub Dormouse Spotted Flycatcher</b>			
			<i>Muscardinus avellanarius</i>
			<i>Muscicapa striata</i>

**Introduction**

This is a large plan which encompasses the whole of the native and broadleaved woodland resource in the Durham BAP area. The plan deliberately avoids labelling woodland vegetation communities in order to focus on the conservation and expansion of all ancient and/or semi-natural woodland, although we recognise that rare stand types are particularly important to conserve, and actions have been written to identify these areas in more detail.

**Ancient Semi-Natural Woodland and PAWS**

Ancient woodland comprises all land which has been continuously wooded since 1600. It includes semi-natural woodland (ASNW), and sites which have been felled and replanted (usually with a conifer crop) known as planted ancient woodland sites (PAWS).

This is our core resource, since the value of woodland for wildlife partly resides in the continuity of its existence, the stable conditions over decades or centuries, and the resultant build up of complexity and biodiversity within the system. Many PAWS retain ground flora and deadwood that indicate the possibility of reverting to ancient semi-natural woodland with careful management.

Ancient semi-natural woodland is usually broadleaved in Durham, but also includes small stands of native Yew Woodland and Juniper scrub. [Juniper](#) has its own Action Plan.

Ancient woodland is widespread, but fragmented, within Durham. It is slightly less fragmented along the Wear, Tees and Derwent corridors. Recent surveys in adjacent areas suggest the resource is still in decline.

**Other Broadleaf Woodland**

This priority habitat encompasses all non-ancient woodland (established since 1600) which is comprised of predominantly broadleaf species. This includes secondary as well as plantation woodland, and may also include woodlands with significant cover of non-native species. Many of Durham's more mature woodlands outside of ancient sites are not predominantly native, being dominated by beech or sycamore. These predominantly non-native broadleaf woodlands are valuable wildlife habitat because of their maturity and structural diversity. It should be noted, however, that the presence of non-native seed sources may cause problems for neighbouring semi-natural woodlands as we aim to increase the proportion of native woodlands in the

landscape.

Upland woodland with a long history of understorey winter grazing may be a particularly important type of broadleaf woodland which we will refer to as upland wood pasture. Its open structure mimics that of true ancient upland oak woodland, and it may provide important habitat for species such as black grouse and pied flycatcher.

However little is known about the history and distribution of such sites and many grazed upland woodlands have no such history and are simply overgrazed. The biggest threat to upland woodland biodiversity as a whole is grazing by domestic livestock which prevents or severely constrains natural regeneration .

Upland wood pasture evolved on an extensive grazing pattern which is not economic today and the default management position for these woodlands should be to fence them against domestic livestock grazing.

New woodland, through planting or the natural regeneration of scrub, can play an important role in buffering ancient woodland areas and in connecting and expanding small and isolated stands of our most species rich woodlands. It is also an important wildlife resource in its own right, especially in areas with little woodland or scrub cover.

Targets for this priority habitat are concerned with new planting and good management and any new plantations should be stocked with appropriate native species. Native but non-broadleaf species such as yew and juniper may be important elements of these plantations or secondary woodlands

Natural regeneration and/or plantation of native woodland should be targeted at strategic sites which buffer or link existing ancient and/or species rich woodlands. Care should be taken, however, to avoid planting or excessive scrub encroachment on other sensitive BAP habitats. Broadleaf woodland cover is low in the Durham BAP area in the national context, although recent policy drivers from the UK government are leading to increased extent and better condition of native broadleaf woodland cover.

### **Wet woodland**

Wet woodland occurs on poorly drained or seasonally wet soils, usually with alder, birch and willows as the predominant tree species. It is found on floodplains, as successional habitat on fens and bogs, along streams and hill-side flushes, and in peaty hollows. In terms of the National Vegetation Classification it includes a wide range of communities from W1 to W8.

The boundaries with dry land woodland may be sharp or gradual and may (but not always) change with time through succession, depending on the hydrological conditions and the treatment of the wood and its surrounding land. Therefore wet woods frequently occur in mosaic with other woodland key habitat types (e.g. with upland mixed ash or oakwoods) and with open habitats such as fens. Management of individual sites needs to consider both sets of requirements.

Wet woodland is rare in the Durham BAP area and has declined through natural succession to drier communities combined with a lack of opportunity for expansion into new wet habitats.

Re-wetting of large areas of the countryside through the refocusing of flood defence budgets provides opportunities for expansion of this habitat.

### **Scrub**

Scrub is an essential structural element of many habitat mosaics, rather than a habitat in its own right. It has the potential to offer a naturally regenerating buffer and expanding edge for woodland. Scrub provides important roosting and feeding areas for migrant birds, especially those arriving on the coast from across the North Sea. In an area with little tree cover such as the Durham coast, scrub is an important landfall for these passage migrants.

**Juniper** scrub is valuable in its own right as a rare and declining habitat. See the [Juniper Action Plan](#).

DEFRA, in its Farm Environment Plan Guidance Handbook, recognises 'scrub of high

environmental value' as a separate category. In the Durham area, and in addition to Juniper scrub and coastal scrub, this would include the following communities which should be protected and managed:

Scrub on calcareous soils with three or more of the following species: way-faring tree, wild privet, dogwood, spurge laurel, black bryony, hawthorn or spindle.

Scrub on peat soils with two or more of the following species: tea-leaved willow, eared willow, goat willow, grey willow, bay willow, purple willow, osier.

### **Species**

Two priority species with particular woodland habitat requirements, are the **Dormouse** and the **Spotted Flycatcher**.

The **Dormouse** is thought to have disappeared from Durham and there have been no records in the last 10 years, although it is still recorded in Teeside and Northumberland. Lack of suitable and connected woodland habitat is thought to be responsible for its decline.

The **Spotted Flycatcher** is a summer migrant bird which uses woodland and scrub in the Pennine Dales. It is in sharp decline, although whether the reasons for this are to do with its winter or summer habitat is not known. Monitoring of this species is proposed.

### **Current or recent activity**

- PAWS restoration guidelines published by both the Woodland Trust and the Forestry Commission. (2006)
- Keepers of Time: A Statement of Policy for England 's Ancient and Native Woodlands was published by FC & DEFRA in 2005. This was an important government policy statement, & national action plan to guide regional and local delivery of ancient and native woodland targets.
- England Woodland Grant Scheme.
  
- North Pennines AONB Woodland Survey finished in 2006. An inventory of all ancient woodland over 2ha.
  
- The completion of 140 ha of native woodland planting in the Coalfield by Durham County Council's woodlands project between 2004 and 2007.
  
- Planning is underway for around 300ha of new native woodland in the North Pennines AONB as part of their Lottery funded 'Unique North Pennines' landscape project.
  
- Work started on an inventory of rare woodland types in Durham – John Durkin. (2006)
- Landscape Strategy published by Durham County Council which maps areas lacking woodland cover and those sensitive to woodland planting, as well as detailing potential new woodland composition. (2004)
- Royal Fern propagation work with Durham University and John Durkin for re-introduction to wet woodlands. (2001-ongoing)
- Wet Woodland creation by the EA at Spring Gardens . (2005)

### **Threats**

- Intensive farming methods have progressively reduced the extent of woodland, especially in the east of our area, restricting good examples to steep-sided valleys.
  
- Pesticide / herbicide spray drift is particularly threatening to small isolated woodland in the agricultural landscape.

- Drainage and over abstraction of water can lead to loss of wet woodland.
- Removal of birch, willow and alder scrub from wetland sites because of a perceived threat to the existing conservation value, means that new wet woodland does not get a chance to develop.
- Small, linear dene woodlands are particularly prone to damage from access tracks which run along their length.
- Loss of habitat through road-building and development, especially of ancient or old semi-natural woodland, is still of concern.
- Fragmentation of habitat through road building, development or agricultural change will impoverish the biodiversity of woodland sites. Some small sites are lost to development.
- Increasing access to woodlands by the public, and an increasingly risk averse culture, leads to excessive removal of standing deadwood from some woodlands.
- Cessation of coppicing management in upland oak woodlands has led to even-aged stands of trees with little regeneration.
- Browsing by wild animals such as deer and rabbits can contribute to a loss of ground flora, and a lack of woodland regeneration. This is difficult to control and requires a regional approach to management.
- Insufficient fencing adjacent to pasture, allowing browsing by livestock, can have the same effect.
- Hard boundaries between woodland and other land-uses does not allow the scrub regeneration which would naturally occur, and which provides a valuable ecotone and protection for the core woodland site. This is particularly so for wet woodland which is dynamic in nature.
- Insensitive restoration of PAWS can lead to loss of ancient woodland wildlife and features.
- Non-native tree species within woodland can eventually spread and replace the native structure of a woodland through natural regeneration.
- Other competitive vegetation such as bracken and rhododendron can contribute to lack of regeneration by reducing light, water and nutrient availability.
- Overzealous scrub removal on grassland sites can lead to insufficient scrub cover for passage migrants in coastal areas.

## Objectives

1. Extend the total area of woodland and scrub habitat, reflecting the characteristic variations in composition and pattern across the DBAP area.
2. Maintain or restore the nature conservation interest of woodland utilising appropriate management systems to achieve favourable conditions.
3. Restore habitat damage, utilising natural regeneration or planting with native species of the appropriate provenance.
4. Better connectivity between and buffering of, key woodland sites using new planting and natural scrub expansion.
5. Protect, maintain and enhance the quality of woodland and scrub habitat.
6. Survey and monitor the condition of woodland in the DBAP area.
7. Ensure that any restoration of PAWS sites is according to Woodland Trust / Forestry Commission guidelines.
8. Raise awareness of local, national and international importance of Woodland and Scrub

habitats and associated flora and fauna.

## More information / references

**Barsoum N. et al (2005).** *Eco-Hydrological guidelines for wet woodland – Phase 1.* EN research Report 619. Natural England, Peterborough.

**Brown K. (2006).** *Northumberland Native Woodland Project – a survey of extent and condition of Ancient Woodlands in Northumberland .* Forestry Commission (unpublished draft).

**Defra/ Forestry Commission (2005)** *Keepers of Time: A Statement of Policy for England 's Ancient and Native Woodlands.* Forestry Commission, Edinburgh.

**Harmer R. and Kiewitt A. (2005).** *Restoration of lowland conifer PAWS.* FC Research Report. Forestry Commission, Edinburgh.

**Pratt K. (1999).** *Action for Wildlife – The Durham Biodiversity Action Plan.* Durham Biodiversity Partnership.

**Thompson R., Humphrey J., Harmer R. and Ferris R. (2003).** *Restoration of native woodland on ancient woodland sites .* Forestry Commission, Edinburgh.

**Woodland Trust (2005).** *The conservation and restoration of plantations on ancient woodland sites - A guide for woodland owners and managers.* Woodland Trust. [www.woodland-trust.org.uk/publications](http://www.woodland-trust.org.uk/publications)

Woodland and Scrub Actions				
Action priorities	Action Contact	Action Partners	Goal	Date
1. Write sample LDF policies on ancient, semi-natural and broadleaved woodland and scrub.	Ged Lawson	DCC, DBP		
2. Write SPD guidance on conservation of ancient, semi-natural and broadleaved woodland and scrub.	Ged Lawson	DCC, DBP		
3. Set up monitoring system for small scale losses of ancient woodland.	Durham Biodiversity Partnership	DBP, LAs, DWT, EA, FC, NE		
4. Create xha of new wet	Jim Heslop	EA, DWT,		

woodland plantation.		NWL, LAs, FC, WT, GNF		
5. Create xha of new woodland habitat.	<b>Durham Biodiversity Partnership</b>	EA, DHC, DCC, FC, WT, NPAONB		
6. Reinventory all ancient woodland and PAWS sites in the Durham BAP area, and add additional sites below 2ha where known.	<b>Richard Pow</b>	FC, DBP, DWT, NE	<b>GIS layer with data and condition assessment</b>	
7. Survey all limestone woodlands below 2ha and determine best management options.	<b>Durham Biodiversity Partnership</b>	DBP, DWT, LAs, NE		
8. Re-survey locations of historic records of populations of dormice to establish current distribution.	<b>Durham Biodiversity Partnership</b>	DBP, NMG		
9. Retain deadwood, especially standing deadwood, in all woodlands.	<b>Durham County Council</b>	DBP, LAs, DWT, FC, WT		
10. Develop and support projects to remove non-native species from woodlands.	<b>Durham County Council</b>	DBP, LAs, DWT, FC, WT		

# Veteran Trees, Parkland and Wood Pasture Action Plan

WO3

Lead Partner: *Ged Lawson – Durham County Council*. [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

Priority habitats or species:

Veteran Trees			
Parkland			
Wood Pasture			

## Introduction

This plan is primarily concerned with veteran trees and habitats which contain veteran trees. Wood pasture and parkland are the products of historic land management systems, and represent a vegetation structure rather than being a particular plant community. Typically this structure consists of large, open-grown or high forest trees (often pollards) at various densities, in a matrix of grazed grassland, heathland and/or woodland floras.

This plan also includes areas currently under agriculture, forestry or other land-uses which were formerly wood-pasture or parkland, but which still contain veteran trees of nature conservation interest. It also includes individual veteran trees that might have originated in deer parks or parklands long since disappeared, or have developed in hedgerows or church-yards. This is in response to the growing concern for Britain's important holding of old trees.

There are no reliable figures for the extent of the resource in Britain although a figure of between 10,000-20,000ha is currently being used as the 'best estimate' of the habitat in a 'working condition' where management is at a level that sustains the habitat's natural features (source: UK BAP). A much greater amount is thought to exist in an unmanaged condition or as trees within arable or improved pasture, or as managed trees within formal, ungrazed landscapes such as golf courses, historic properties and recreational parks.

Veteran trees can be native or introduced species and are defined as the oldest examples of a given species in an area. For oak, as an example this is generally interpreted locally as 300 years (typically with trunk girths exceeding 750cm). For shorter-lived trees such as birch and poplar, this might be 200 years, but the definition is a rather subjective one that can vary between a county with many such trees and one with relatively few. Britain's holding of old trees has international significance, as the frequency of them here is far greater than in most other parts of western Europe. In Britain, the veteran trees of wood-pasture and parkland in particular provide important micro-habitats for many internationally rare species, including certain fungi, lichens, bryophytes and a variety of 'saproxylic' (rotting wood-associated) invertebrates – particularly flies and beetles.

These micro-habitats include attached and detached decaying wood, sap runs, heart-rot, water-filled rot holes, rotting stumps and invisible old roots. The fungi associated with veteran trees and the dead wood in turn provide a further microhabitat for many insects. Parklands may also provide a refuge for indigenous or otherwise valuable trees such as Black Poplar.

## **Current or recent activity**

Regional Veteran Tree Forum set up in October 2007 by Durham Biodiversity Partnership, Durham County Council and Northumberland Wildlife Trust.

## **Threats**

- Lack of younger generations of trees is producing a skewed age structure, leading to breaks in continuity of dead wood habitat and loss of specialised dependent species.
- Neglect, and loss of expertise of traditional tree management techniques (e.g. pollarding) leading to trees collapsing or being felled for safety reasons.
- Loss of veteran trees through disease (e.g. Dutch elm disease, oak dieback), physiological stress, such as drought and storm damage, and competition for resources with surrounding younger trees.
- Removal of veteran trees and dead wood through perceptions of safety and tidiness where sites have high amenity use, forest hygiene, the supply of firewood or vandalism.
- Damage to trees and roots from soil compaction and erosion caused by trampling by livestock and people and car parking.
- Changes to ground-water levels leading to water stress and tree death, resulting from abstraction, drainage, neighbouring development, roads, prolonged drought and climate change.
- Isolation and fragmentation of the remaining parklands and wood-pasture sites in the landscape. (Many of the species dependent on old trees are unable to move between these sites due to their poor powers of dispersal and the increasing distances they need to travel).
- Pasture loss through conversion to arable and other land-uses.
- Pasture improvement through reseeded, deep ploughing, fertiliser and other chemical treatments, leading variously to tree root damage, loss of nectar-bearing plants, damage to the soil and epiphytes.
- Inappropriate grazing levels: under-grazing leading to loss of habitat structure through bracken and scrub invasion; and over-grazing leading to bark browsing, soil compaction and loss of nectar plants.
- Pollution derived either remotely from industry and traffic, or locally from agro-chemical application and nitrogen enrichment from pasture overstocking, causing damage to epiphyte communities and changes to soils.



## Objectives

1. Maintain and enhance all areas of veteran trees and their associated habitats through appropriate management, preventing any further loss or degradation.
2. Increase the extent of parkland and wood pasture through restoration of degraded areas and expansion of existing areas.
3. Improve knowledge of veteran trees, parkland and wood pasture through survey, research and monitoring.
4. Facilitate a better understanding and increase awareness of the value of veteran trees, parkland and wood pasture.

## More information / references

**Read H. (2000).** *Veteran Trees – a guide to good management.* Natural England, Peterborough .

Veteran Trees, Parkland and Wood Pasture Actions				
Action priorities	Action Contact	Action Partners	Goal	Date
1. Ground-truth part of the County Durham woodland database showing possible wood pasture.	<b>Ged Lawson</b>	<b>DCC, DBP, DWT</b>		
2. Create a GIS database of Veteran Trees, Wood Pasture & Parkland.	<b>Ged Lawson</b>	<b>DCC, DBP, DWT</b>	<b>3 GIS layers</b>	
3. Write SPD guidance on ancient, veteran and mature trees, and the conservation of wood pasture and parkland.	<b>Ged Lawson</b>	<b>DCC, DBP, DWT</b>		
4. Write sample LDF policies on ancient, veteran and mature trees, and the conservation management of wood pasture and parkland.	<b>Ged Lawson</b>	<b>DCC, DBP, DWT</b>		
5. Review Local Site status of parklands and individuals/ groups of veteran trees.	<b>Ged Lawson</b>	<b>DCC, DBP, DWT, NE</b>		
6. Run training days for the public and professionals on veteran trees and associated habitats.	<b>John Bragg</b>	<b>DCC, DBP, DWT</b>		

7. Run volunteer-based surveys to record veteran and mature trees in the Durham BAP area.	<b>John Bragg</b>	<b>DCC, DBP, DWT</b>		
8. Create web-based guidance notes on management of wood pasture	<b>Ged Lawson</b>	<b>DCC, DBP, DWT</b>		
9. Engage 100 school children in activities associated with identifying veteran trees	<b>Durham Biodiversity Partnership</b>	<b>DBP, DCC, WT</b>		
10. Produce guidance on the conservation and management of veteran trees	<b>Durham Biodiversity Partnership</b>	<b>DBP, DCC, WT</b>		
11. Run a programme of guided walks to ancient and notable trees	<b>Durham Biodiversity Partnership</b>	<b>DBP, DCC, WT</b>		
12. Production of a Veteran Trees of Durham publication	<b>Durham Biodiversity Partnership</b>	<b>DBP, DCC, WT</b>		
13. The recording of at least 1000 veteran trees by the Durham BAP Veteran Trees Project	<b>Durham Biodiversity Partnership</b>	<b>DBP, DCC, WT</b>		

# Ponds, Lakes & Reservoirs Action Plan

WE2

Lead Partner: *Natural England* [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

Priority habitats or species:

**Ponds**

## Introduction

### Description

Standing open waterbodies come in a range of types and sizes, some formed naturally and some man-made. Natural waterbodies occur in depressions created by glacial action, natural subsidence or river activity. Waterbodies formed by human activity include reservoirs, village green and garden ponds, ponds created by landowners for fishing, shooting, watering stock or amenity, ponds and lakes created by mining subsidence, water -logging of old brick pits, flooding of gravel pits, clay workings and bomb craters, and most recently by the clogging up or closure of pumps on agricultural land.

Waterbodies are classified according to their nutrient status: nutrient-rich (eutrophic waters predominate in the lowlands, where nutrient status is often artificially increased by agricultural fertilisers, whilst nutrient poor (oligotrophic) waters tend to occur in the uplands. Water bodies with intermediate levels are classed as mesotrophic, and peaty and acidic Waterbodies, occasionally found in the uplands, are termed dystrophic.

Classification by size is arbitrary, but for the purposes of this plan, and for monitoring the priority habitat, a pond is defined as a temporary or permanent water body between 5 square meters and 2ha (5 – 20,000 m<sup>2</sup>) in surface area, which holds areas of open water for at least part of the year. The definition excludes garden ponds, which are covered in the gardens and allotments action plan.

### Importance for Wildlife

All standing waterbodies have value for wildlife, particularly invertebrate and bird life. Around 3500 of the UK 's invertebrate species live in fresh water and up to half of these in ponds. Over two thirds of Red Data Book invertebrates occur in ponds, as do 300 species of vascular plants, including half the UK 's wetland plants.

Larger waterbodies are of particular importance for bird life, especially those which include other related habitats such as fen (especially *Phragmites australis* reedbed), seasonally inundated grassland or wet woodland. These large waterbodies can often be improved for birds and other wildlife by providing more structural diversity, including undisturbed island areas for breeding.

Amphibians require waterbodies to complete the breeding cycle in spring and summer. Crucially they also need good foraging land and areas where they can hibernate and shelter nearby.

Small pools will quickly become choked with vegetation if left uncleared, and will naturally progress to basin mire and then scrub or wet woodland. This is often a valuable habitat in its own right, and supports a number of specialist invertebrates. However the retention of open water is often also a valuable conservation goal, and a balance has to be found between allowing natural succession and creating open water.

Ideally ponds exist in complexes of several waterbodies at different stages of succession, and in sufficient land to be able to create new ponds, as older ones dry up. This complex allows mobile open water species to avoid localised extinction, and allows the natural succession that favours others.

Where ponds are isolated, and where open water is seen as a crucial conservation factor, partial clearance may be necessary. However the development of linked complexes of pools across the landscape should be seen as a major conservation goal.

## **Distribution**

In Durham there are approximately 1000ha of standing waterbodies, the majority of which are artificial waterbodies such as reservoirs. All the largest reservoirs are found in the west of Durham, mostly in the head of Pennine dales of Teesdale and Weardale, and smaller examples infringe on the upland plateaux further north, such as Waskerley and Smiddyshaw.

The open water-bodies alongside the River Wear at Witton-le-Wear have developed as a result of sand and gravel working. Brasside pond, near Durham City, is one of the largest areas of unpolluted water in Durham and developed following the abandonment of clay extraction. Naturally formed examples of waterbodies include the calcareous subsidence pools of Hell Kettles, the finest examples of limestone pools in Durham. Good examples of cut off meanders occur to the south of Durham City on the river Wear. Tarn Dub within Upper Teesdale is an important example of an upland permanent pool.

Ponds are thinly spread across the DBAP area, and are particularly rare in the North Pennines and Magnesian Limestone Natural areas.

## **Current or recent activity**

Some pond creation and management on school sites, local authority sites and business premises reported in BARS. Very likely that most work of this kind has been unreported.

Creation of first draft pond layer on GIS for Durham BAP area (2006) – Durham Biodiversity Partnership.

## **Threats**

- Lack of data about pond locations and quality hinders conservation by making it difficult to identify priorities.
- Isolation through the loss of surrounding semi-natural habitat.
- Natural succession of ponds to dry land communities through build up of vegetation is not, by

itself, a threat. However lack of replacement open water habitats nearby will lead to local species losses.

- Over-zealous clearance of ponds to maintain open water communities often leads to losses of valuable fen and reedbed communities.
- Point source and diffuse pollution (including abandoned mine discharges, run-off, atmospheric deposition and nutrient enrichment) are a serious threat to many waterbodies.
- Invasion or introduction of invasive plant species. Species such as Water Fern (*Azolla filicoides*) and Australian Stonecrop/New Zealand Pygmyweed (*Crassula helmsii*), can out-compete all other plants locally, leading to a loss of plant diversity.
- Introduced species of animals can cause a range of problems. Mink are a factor in the decline of water voles; crayfish plague from American signal crayfish threatens native white-clawed crayfish.
- Fish stocking of ponds can affect wildlife through competition, introduction of diseases and invasive plant species. Newts also suffer from predation of eggs and larvae by fish.
- Loss of ponds to development.
- Increases in recreational use can lead to pressure to control aquatic plants, increased littering and degradation of banks.

## Objectives

1. Increase the number of water bodies valuable to wildlife through restoration or habitat creation, maintaining the diversity of habitat by varying size, depth and vegetation.
2. Identify and protect ponds, lakes and reservoirs of high biodiversity value from loss or degradation.
3. Halt the net loss of ponds in the DBAP area.
4. Increase awareness of the biodiversity value of aquatic habitats and promote the principles of good pond management and creation.
5. Improve knowledge of ponds, lakes and reservoirs through survey, research and monitoring.
6. Maintain and enhance the ecological quality and diversity of existing water bodies and their associated fauna through appropriate management.
7. Limit the spread of invasive species between waterbodies.

## More information / references

## Ponds, Lakes & Reservoirs Actions

Action priorities	Action Contact	Action Partners	Goal	Date
1. Identify priority areas for pond creation on a landscape scale	<b>Jim Heslop</b>	<b>EA, DBP, LAs, DWT, NE</b>	<b>GIS opportunity map for pond creation – linked to Great Crested Newt Action Plan</b>	<b>2009</b>
2. Create ponds as part of landscape scale schemes	<b>Jim Heslop</b>	<b>EA, DBP, DWT, NE, LAs, NWL, FWAG</b>	<b>100 new ponds created</b>	<b>2012</b>
3. Give management advice to landowners with ponds	<b>Jim Cokill</b>	<b>NE, FWAG, DBP, DWT</b>		
4. Continue Lake Characterisation Project. Through the analysis of chemical and macrophyte data determine current status of lakes and initiate management plans where necessary. .	<b>Jim Heslop</b>	<b>EA</b>		
5. Collate data on invasive species distribution in order to identify vulnerable pond sites.		<b>NE, DWT, DBP, LAs</b>	<b>distribution map available on GIS</b>	<b>2009</b>
6. Develop action plan for invasive species for site managers responsible for vulnerable pond sites.	<b>Dean Heward</b>	<b>NE, DWT, DBP, LAs</b>	<b>action plan published</b>	<b>2009</b>
7. Influence the appropriate targeting of Environment Stewardship scheme funds towards pond/lake creation	<b>Jim Heslop</b>	<b>NE, FWAG, EA, DBP</b>		
8. Include the provision for restoration of gravel workings to lakes and ponds in Mineral Planning Frameworks	<b>Stuart Priestley</b>	<b>Local Authorities, DBP, DWT, RSPB</b>		
9. Collate data on rare plant	<b>DurhamBiodiversity Partnership</b>	<b>EA, DBP, DWT, NE,</b>	<b>distribution map available on GIS</b>	<b>2010</b>

distribution within ponds		<b>LAs, NWL,</b>		
10. Encourage use of sustainable urban drainage system (SUDS), following best practice for biodiversity enhancement	<b>Stuart Priestley</b>	<b>Local Authorities, DBP, DWT, EA</b>		
11. Identify opportunities to create new ponds through landscaping and mitigation for development schemes	<b>Stuart Priestley</b>	<b>Local Authorities, DBP, DWT</b>		
12. Ensure monitoring and survey of all reservoirs is taken at regular intervals : Seasonal for wildfowl and waders, 3 years for fish and 10 years for botanical to update knowledge of wildlife.	<b>Stuart Pudney</b>	<b>NWL</b>		
13. Create more temporary ponds, important for many invertebrates including some dragonflies and damselflies, and amphibians (since fish, which prey on eggs and tadpoles cannot be supported in such pools).	<b>Jim Cokill</b>	<b>Local Authorities, DBP, DWT, EA</b>		
14. The maintenance or creation of a diversity of wetland habitats (open water of varying depth, fen, reedbed, wet grassland, bare ground and wet woodland) as part of management or creation schemes for large single ponds/lakes and/or pond complexes.	<b>Jim Heslop</b>	<b>Local Authorities, DBP, DWT, EA</b>		

# Rivers and Streams Action Plan

WE3

Lead Partner: *Jim Heslop – Environment Agency.* [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

Priority habitats or species:

<b>Rivers &amp; Streams</b>	
<b>Floodplain Grazing Marsh</b>	
<b>Exposed Riverine Sediments</b>	
<b>Otter</b>	<i>Lutra lutra</i>

## Introduction

Rivers and streams are naturally dynamic habitats with a constant or seasonal flow of water. As dynamic systems they provide a wide range of ecological niches supporting a diverse flora and fauna. They also play a vital role as wildlife corridors.

The constant movement of water causes a scouring motion which, alone or in combination with changes in rainfall and run-off, can alter the course of the waterway. The associated features such as sand and shingle habitats, and marginal and bankside vegetation form an integral part of the stream or river and contribute to the associated wildlife that they can support.

Watercourses fulfil a range of important socio-economic functions such as water supply, pollution dispersal, provision of amenity and acting as a biodiversity resource.

Rivers can also have an impact on adjacent land through flooding and erosion. For these reasons rivers have been heavily managed in both rural and urban settings. It is essential that future management takes account of the importance of the dynamic nature of rivers and streams, and the need to maintain and improve their contribution to biodiversity, locally, nationally and internationally.

The major rivers within Durham are the Wear, Tees and the Derwent, though smaller rivers, streams and ditches are widespread throughout the plan area.

There are currently no rivers or streams in the Durham area designated as SSSIs specifically for their biodiversity value, although the River Tees, within the Upper Teesdale NNR, is cited as an example of a good upland river. The biological water quality of the rivers and streams in the area is varied, although over half are considered to be of a high standard. The majority of the “good” rivers, classes A and B, are in the uplands whilst those classified as poor or bad are normally found in the lowland reaches flowing through urban and industrial areas. Many of the poorer quality rivers, however, are valuable biodiversity resources, for example they provide critical wildlife corridors and are able to support endangered species such as the water vole; the rivers Don and Skerne being two such examples.

The Wear and Tees catchments support important stocks of migratory Salmonids. In recent years the number of sea trout returning to spawn in these catchments has been increasing. Salmon also



appear to be increasing in numbers. The Wear and Tees catchments also have diverse non-migratory fish communities including brown trout, grayling, lamprey and a range of coarse fish species including dace, chub, gudgeon, bream, eel, stone loach, minnow and bullhead. Improvements in water quality, the removal of obstructions, improvements to habitats and anti-poaching strategies have all contributed to the upsurge in fish stocks in local watercourses.

Rehabilitation work is being undertaken or investigated in several areas including the River Team and the middle to lower reaches of the River Wear. Restoration of a length of the River Skerne, is an example of what can be achieved in restoring natural hydrological features to a polluted and previously heavily managed watercourse.

Even the smallest watercourses often provide an important amenity resource and riverside access affords the possibility for a wide body of people to experience freshwater and its associated habitats.

### **Exposed Riverine Sediments**

Exposed riverine sediments are the sands, gravels and shingles of active streams and rivers. These support a rich invertebrate fauna including many rare and specialist beetles. Limited survey work from four sites in Weardale suggests it is important within an English context. This feature is limited to the middle and upper reaches of the Wear and Tees Catchments, but it is not sufficiently well characterised or mapped within the Durham BAP area.

### **Floodplain grazing marsh**

Floodplain grazing marsh is UK BAP priority habitat which would, historically, have been much more widespread. Agricultural drainage, built development and river flood management schemes have destroyed almost all grazing marsh. Some recent schemes are starting to reverse the trend. Floodplain grazing marsh is not necessarily species rich, but can be highly important feeding and breeding ground for many birds.

### **Otter**

Since 1996 otters have successfully colonised the River Wear, and are now widespread on our three major rivers systems, the Derwent, Wear and Tees . The return of the otter to these watercourses is, in large part, due to better water quality and consequent availability of food. Two smaller river systems remain to be fully colonised by otters in the Durham BAP area, the Skerne and the Team.

Other Durham BAP priority species that will benefit from actions in this plan have their own action plans, namely Freshwater Fish (covering salmon, wild trout and eel), White -clawed Crayfish, Water Shrew, Water Vole & Pale Bristle Moss.

### **Current or recent activity**

Otter holt construction has been a feature of riparian work by many agencies including the Durham Wildlife Trust, the Environment Agency and Northumbrian Water Ltd.

Working on the Wear (2003-2008) – is a Mineral Valleys Project based within the Wear Catchment implementing habitat improvements along the Wear and its tributaries.

The Team Revival Project (2001-2006) was a partnership between the Environment Agency and public and private sector organizations which developed a programme of environmental improvement to the Team Valley, including

- 8 ha of reedbed were created at Lamesley as part of the joint treatment system for Northumbrian Water's Birtley Sewage Works and the Coal Authority Kibblesworth Pumped Minewater discharge.
- 500m of river Team bankside habitat through the Team Valley Trading Estate were improved by installing berms to increase marginal vegetational and flow .

Catchment Flood Management Plans (CFMPs) are being developed by the Environment Agency for sustainable flood risk management on a catchment scale.

NWL Fish Study - expand

A project was initiated in 2002 to attempt to control Giant Hogweed in the Wear Catchment. By combining the resources previously invested by local authorities and other relevant bodies it was hoped that a more strategic approach could be adopted. Unfortunately a lack of long-term funding resulted in this project being unable to implement control over the time period required to eliminate Giant Hogweed from the catchment.

Through the North Pennines Peatscapes project improved land management in the uplands will improve water quality and reduce flood risk in the downstream catchments.

Fish passes etc. – EA? - expand

Dipper Box project by Durham Bird Club (2001-2004) erected 28 boxes under bridges in the Wear catchment with 60% take-up in year one.

## **Threats**

- The primary threats to rivers and streams in the DBAP area are:
- Point source and diffuse pollution (including abandoned mine discharges, run-off, atmospheric deposition and nutrient enrichment) are a serious threat to many waterbodies.
- Land drainage and flood defence works. Historic works have shaped the rivers that we see today. Insensitive works can affect in-stream and riparian habitat and isolate watercourses from floodplains.
- Invasive plant and animal species including, mink, signal crayfish, giant hogweed, Japanese knotweed.
- Poor or inappropriate land management can result in exacerbated erosion rates, loss of riparian vegetation, sedimentation and nutrient enrichment.
- Urbanisation and road building within the floodplain.

- Upland drainage. The use of "grips" in the uplands to drain areas of moorland can alter the flood regime. A more "flashy" regime, results in rapid runoff, higher flood peaks, and increased erosional activity.
- Poor gravel management, including extraction, damages the dynamic character and quality of exposed riverine sediments
- A conflict between otters and the recreational course fishing industry can lead to otter persecution.

## Objectives

1. Increase awareness, understanding and appreciation of the value of rivers and streams, their conservation needs and their sustainable use.
2. Undertake river restoration to enhance degraded river channels and restore natural habitat features
3. Identify suitable areas for the restoration and creation of wetland habitats.
4. Protect the habitats and associated species of rivers and streams from loss or degradation through appropriate management
5. Maintain and enhance the quality of existing natural channels, and flood plain features preserving the ecological value of these watercourses.

## More information / references

**Lewis G. & William G. (1984).** *Rivers & wildlife handbook: a guide to practices which further the conservation of wildlife on rivers* . RSPB and RSNC.

**National Rivers Authority (1993).** *Otters & River Management*. Conservation Technical Handbook No. 3.

Rivers and Streams Actions				
Action priorities	Action Contact	Action Partners	Goal	Date
1. Write and distribute ERS management guidance to ensure appropriate management of this habitat.	Jim Heslop	EA	1 guidance document	2009
2. Assess the quality of Exposed Riverine Sediments in areas of the Tees and establish representative reaches for continued monitoring throughout the area.	Jim Heslop	EA	GIS layer	2009

3. Repeat the ERS baseline monitoring on the Wear and the Tees	<b>Jim Heslop</b>	<b>EA</b>	<b>survey completion Wear and Tees</b>	<b>2012</b>
4. Implement the programme of measures required under the Water Framework Directive.	<b>Jim Heslop</b>	<b>EA</b>	<b>all measures implemented</b>	
5. Use the Northumbria Area Wetland Feasibility layer to ensure that wetland creation and riparian habitat management are incorporated into plans and schemes where appropriate.	<b>Jim Heslop</b>	<b>EA, All</b>		
6. Ensure, through development control, the use of otter-proof fencing on new fisheries where conflict may arise.	<b>Jim Heslop</b>	<b>EN, LAs</b>		
7. Ensure appropriate engineering takes place as part of the A19 road widening scheme to allow continued otter passage and prevent roadkill.	<b>Jim Cokill</b>	<b>DWT, STC, EA</b>	<b>engineering works complete</b>	<b>2009</b>
8. Encourage river bank owners to install artificial otter holts where appropriate.	<b>Jim Heslop</b>	<b>DBP, EA, DWT</b>		
9. Raise awareness of otters needs with the public, key groups, landowners, riparian owners, anglers and river users through the press and the publication of leaflets, posters and as well as events and training.	<b>Jim Cokill</b>	<b>DBP, EA, DWT, LAs</b>		
10. Influence the targeting of Environmental Stewardship schemes towards improved riparian habitat management, wetland creation and greater interaction between the river and floodplain.	<b>Jim Heslop</b>	<b>EA, FWAG, NE</b>		
11. Continue to focus the work of the Environment Agency towards the establishment of natural morpho-hydrological regimes	<b>Jim Heslop</b>	<b>EA</b>		
12. Raise awareness with landowners of the importance of the ERS resource	<b>Jim Heslop</b>	<b>EA</b>		

# Upland Dry Heath & Acid Grassland Action Plan

UP4

Lead Partner: *Miriam Baines – Natural England*. [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

## Priority habitats or species:

Upland Dry Heath			
Species-rich Upland Acid Grassland			
Northern Dart (moth)			<i>Xestia alpicola</i>

## Introduction

### Upland Dry Heath

Upland dry heath is found mostly on land between 250m and 600m on mineral soils and thin peats throughout the uplands of the UK. Lowland heath is found on land below 250m whereas montane heath is generally found above 600m. It is characterized by the presence of dwarf shrubs at a cover of at least 25%. A range of dwarf shrubs including heather, bilberry and crowberry typically dominates dry upland heath in good condition. In the south and west of the UK western gorse, and in the north European gorse and occasionally juniper, is seen above the heathland understorey. High quality heaths are generally structurally diverse with a range of age classes of heather present.

Much of the value of upland heath sites lies in their mosaic with acid grassland, blanket bog, flushes and other fen habitats. There is a separate plan covering blanket bog and upland wet heath.

Upland heath is found on all the major upland blocks within the UK from Dartmoor to Shetland, giving a total of between 2 and 3 million hectares, over half of which is found in Scotland.

Dwarf shrub heaths are of international importance as they are largely confined in Europe to the UK and the western seaboard of mainland Europe.

The upland heathlands of Durham are found mainly in the North Pennines natural area. They are recognised as being of national and international importance, in particular the North Pennine Moors SPA, and Moor House and Upper Teesdale SAC.

The northern dart moth is a UKBAP priority species associated with heathland habitats. Its distribution in the Durham BAP area is unknown, with historic records only for Teesdale.

Upland dry heath is also important for the following Durham BAP priority species, which are the subject of separate action plans: hen harrier; merlin; ring ouzel; black grouse; curlew; snipe; lapwing; redshank; adder; slow worm; round-mouthed whorl snail and yellow marsh saxifrage.

## Acid Grassland

Acid grassland is a component of dry upland heath, often a dominant one. For the purposes of the Durham BAP, where it is part of a mosaic with heather it is counted as an integral part of the priority habitat upland dry heath. Where large tracts of acid grassland exist in the absence of heath it is not.

There are four main types of acid grassland in the North Pennines, distinguished by their dominant species. Although the dominants vary, the other constituent plants occurring within the communities are similar and generally few in number. Typical are: sweet vernal-grass, common woodrush, heath bedstraw, tormentil, *Rhytidiadelphus squarrosus* (a moss) and *Dicranum scoparium* (a moss).

The most abundant of the acid grasslands are those dominated by mat-grass. Often these habitats are very poor in other species being derived from overgrazing of upland heath. They are popularly referred to as 'white moor'.

Mixtures of sheep's fescue and common bent dominate the second type which is often a little species-richer and has developed over better soils, containing other herbs such as dog violet.

A relatively small proportion of the acid grassland total is accounted for by grasslands in which wavy hair-grass is dominant. This species is a common constituent of other acid grassland types but is particularly favoured by burning and may become locally or temporarily prominent.

Grasslands in which heath rush is the dominant species develop extensively only in wetter situations, typically over shallow peat on the moorland edge.

Where upland acid grassland is not particularly species-rich then consideration should be given to alternative development pathways which may benefit biodiversity. Restoration to dry upland heath is one option, reforestation towards native [semi-natural woodland](#) or [juniper](#) scrub may be another in appropriate locations, especially where it links existing ancient or semi-natural woodland, or where it might benefit other Durham BAP species such as [black grouse](#). Another option where required might be its use as layback land for a grazing scheme targeted at priority habitats nearby.

### Species-rich acid grassland

Most upland acid grassland is relatively species-poor but occasionally very species-rich examples are found which are closely related to the NVC community U4c. This is a poorly understood type of grassland. The description in British Plant Communities is based only on a small number of samples from the Peak District. In 2006 and 2007 similar vegetation was found several times, in mostly small patches on unmown banks within upland hay meadows in the North Pennines, but it may also occur in other situations in the uplands. A definition of this priority habitat based on experience in the North Pennines has now been developed.

Waxcap and other fungi are often associated with acid grassland and there are some important sites in the North Pennines. There is a separate plan for [waxcap grassland](#).

### Current or recent activity

2004-05 – Northumbrian Water Ltd. - native trees, shrubs, heather, bilberry and native moorland grasses planted at Wear Valley Treatment Works to improve the surrounding landscape for black grouse.

2000-04 - Northumbrian Water Ltd - Heathland rejuvenation at Pow Hill - cutting of mosaic to re-introduce structure and age diversity within heather. Suitable reptile hibernaculae and basking areas created.

1999 – 2005 - Northumbrian Water Ltd. - Pow Hill Heathland management plan drawn up and bracken cover mapped for monitoring. (In association with Durham County Council).

1999 – 2005 – Northumbrian Water Ltd – Heathland and wetland NVC survey and monitoring along Riddings Burn, Pow Hill, including butterflies and reptile survey.

## Threats

- Over-grazing – leading to the removal of dwarf shrub heath leaving acid grassland.
- Under-grazing- allowing domination by trees and scrub.
- Winter foddering of stock which leads to localised overgrazing and poaching.
- Badly managed heather burning or wildfire.
- Recreation pressure, especially use of motorised off-road vehicles.
- Isolation of habitat- loss of connecting moorland habitats.
- Loss of habitat- through planting of conifers or agricultural intensification.
- Loss of variety of habitat- intensive management for heather and grouse production, leading to a decrease in the mosaic quality of upland moorlands.

## Objectives

1. Safeguard key sites and ensure appropriate management for BAP species.
2. Create new habitat on suitable sites and restore degraded sites.
3. Raise awareness and understanding of the biodiversity value and importance of upland dry heath habitats.
4. Protect and maintain the existing populations of northern dart on all known sites.

## More information / references

**Backshall, J., Manley, J. & Rebane, M. (Eds). (1999).** *The Upland Management Handbook*. English Nature, Peterborough .

**English Nature (1996).** *Management of bare ground on dry grasslands and*

heathlands Peterborough

**Lane, A. (1992).** *Practical Conservation- grasslands, heaths and moors* (The Open University in association with the Nature Conservancy Council). Open University: London

**Putwain, P.D. and Rae, P.A.S. (1998)** *Heathland restoration: a handbook of techniques* British Gas: Southampton

**Rodwell, J.S. (1992)** *British Plant Communities. Vol. 2 'Mires and heaths* Cambridge University Press: Cambridge

<b>Upland Dry Heath &amp; Acid Grassland Actions</b>				
<b>Action priorities</b>	<b>Action Contact</b>	<b>Action Partners</b>	<b>Goal</b>	<b>Date</b>
1. Determine location and extent of species-rich examples of acid grassland	<b>Durham Biodiversity Partnership</b>	<b>DBP, Botany Group</b>		
2. Agree burning plans on all SSSI heathlands	<b>Miriam Baines</b>	<b>NE</b>		
3. Instigate dialogue with Fire Authority regarding wildfires on important sites.	<b>Durham Biodiversity Partnership</b>	<b>DBP, DCC, NE, FC, AONB</b>		
4. Determine extent of upland dry heath outside of designated sites	<b>Durham Biodiversity Partnership</b>	<b>DBP, Botany Group</b>		



# Upland Haymeadows Action Plan

UP5

Lead Partner: **Rebecca Barrett – North Pennines**  
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## Priority habitats or species:

Upland Haymeadows			
Lady's Mantles			<i>Alchemilla spp</i>

## Introduction

Upland hay meadows are a type of unimproved neutral grassland in the uplands which are managed to provide winter fodder for stock. The best of these grasslands conform to the National Vegetation Classification MG3 community -*Anthoxanthum odoratum* - *Geranium sylvaticum* sweet vernal grass - wood cranesbill. Others, which have declined following inappropriate management show characteristics of NVC MG6, but retain some botanical interest.

Whilst upland hay meadows support some rare species, such as globe flower and species of lady's mantle, their real importance lies in their species composition. Their low fertility soils, coupled with the impact of grazing and cutting, means that individual species are unable to dominate, resulting in the very richest hay meadows containing over 30 species per square metre, with up to 120 species per field, including wood cranesbill, great burnet, pignut, wood anemone, bugle, marsh hawk's-beard, yellow rattle and lady's mantles.

Haymeadows in the North Pennines are of particular importance to a number of rare **lady's mantles** (*Alchemilla* species). Nine species of lady's mantle grow in the Durham area, of which 5 are rare. *Alchemilla acutiloba*, *A. glomerulans*, *A. subcrenata*, *A. monticola* and *A. wichurae* are all red-listed under the 2001 IUCN criteria. All of these species also survive on road verges in the area.

Hay meadows are also important as feeding areas for invertebrates and bats and provide important nesting and feeding sites for yellow wagtail, twite, grey partridge, black grouse and curlew. Upland meadows were once an essential nesting habitat for the globally threatened corncrake, and recent increases in the breeding population in Scotland and sightings in England both suggest that Pennine hay meadows may still play an important role in the long term future of this bird.

## Management

Hay meadows are entirely the product of human management. In general, hay meadows are grazed during the autumn/winter and early spring and are then 'shut up' (the stock removed) in May to allow the hay crop to grow. Hay is normally cut in July or August but in some cases as late as September. Stock are then typically returned to the field to graze the 'aftermath'. Farmyard manure tends to be applied annually to restore nutrients removed with the hay crop and

traditionally light applications of lime have been added to maintain neutral soil pH conditions.

However, depending on a hay meadow's location relative to the farmstead, its aspect and altitude, slight differences in management mean that every hay meadow has a unique management history. Fields closer to the farm will have tended to have been cut earlier, those at a higher altitude later. Fields closer to the farm would also be more likely to receive inputs such as farmyard manure and lime than those further away. Over the generations, these slight differences in management have resulted in fields with subtly different suites of species, each representing a unique 'fingerprint' of the field's management history.

## **Distribution**

Upland hay meadows are now almost exclusively restricted to upland valleys of North Yorkshire, Cumbria, County Durham and Northumberland. Teesdale and Weardale together with some of the Yorkshire Dales are widely acknowledged to possess the finest concentration of northern hay meadows anywhere in Britain. It is one of the rarest grassland types in the UK with recent estimates indicating that there are less than 1,100ha in the UK (including 440ha in the North Pennines AONB).

In Durham the finest examples are in Teesdale, Lunedale, Balderdale and Weardale.

## **Trends**

Unimproved neutral grassland habitat declined drastically during the 20th century, almost entirely due to changing agricultural practices. This includes the use of inorganic fertilizers and herbicides, ploughing and reseeded, conversion to silage making, heavy grazing pressure, drainage and neglect. It was estimated that by 1984 semi-natural grassland in England and Wales had declined by 97% over the previous 50 years. Losses have continued and have been recorded at 2-10% per year in some parts of England.

The upland haymeadow resource is still declining in terms of quality and extent despite its protection and the Environmentally Sensitive Area (ESA) scheme. Research shows that this is largely due to the allowance under ESA Tier 1 agreements of light applications of inorganic fertilizer (on the best meadows). Tier 2 meadows are not diversifying quickly, or at all, because of lack of a viable seed bank remaining in the soil and the limited potential for seeds to migrate naturally from neighbouring sites owing to the rarity and highly fragmented nature of species-rich meadows. Also hay cutting dates are now mainly within a few days of each other. Before mechanisation cutting would have been phased over a much longer period, and this may have been important for diversity.

## **Current or recent activity**

### **Research**

Dr Roger Smith ( University of Newcastle ) has been involved in long running meadow restoration experiments which have shown that sowing seed onto improved swards where traditional management practices have been reinstated can significantly increase plant species diversity, and that relying solely on natural dispersal of seed from surrounding habitats will not lead to rapid increases in diversity. This work suggests that meadow restoration should be viewed as a process of secondary succession from species-poor to species-rich vegetation. Seed sowings should also

be successional: seed of species such as yellow rattle, red clover, sweet vernal grass and meadow buttercup should be included in the first sowing as these are early colonizers of soils affected by past intensive management. These species change the soil microbial conditions, especially increasing the soil fungi:bacteria ratio, which alters soil processes and creates niches for late-colonising species such as quaking grass, birdsfoot trefoil and devil's-bit scabious. Yellow rattle in particular is extremely important as it has a debilitating effect on improved swards, allowing other wildflowers to get established. It may however be several years before conditions allow a diverse vegetation to flourish.

## **Project work**

The North Pennines AONB Partnership has recently launched (2006) the Haytime project, in partnership with the Yorkshire Dales Millennium Trust. Part of the project's objectives is to restore and enhance MG3 grassland in the North Pennines , and is using Dr Smith's work as the basis for this restoration and enhancement.

## **Threats**

- Agricultural improvement is still a threat to upland haymeadows – particularly addition of inorganic fertilisers.
- Uniformity of management (i.e. fixed cutting dates) from year to year.
- A shift from mixed sheep and cattle farming to sheep only results in changes in grazing patterns and no farmyard manure.
- Scarcity of species-rich meadows or other seed sources for restoration projects
- Global warming may mean the loss of some 'northern' or 'sub-montane' species which depend on cold weather for parts of their life cycle, e.g. wood cranesbill, globe flower, melancholy thistle and some of the lady's mantles.

## **Objectives**

1. Maintain the current extent of upland haymeadows, ensuring no further loss or degradation
2. Improve the quality of upland hay meadows through appropriate management regimes.
3. Develop and manage sustainable seed and plant sources for meadow enhancement work.
4. Continue monitoring of sites for rare lady's mantles
5. Raise awareness and understanding of the biodiversity value and importance of upland hay meadows.

## **More information / references**

North Pennines AONB Hay Time Project: [www.northpenninesaonb.org.uk](http://www.northpenninesaonb.org.uk)

Jefferson, R.G., *The conservation management of upland hay meadows in Britain: a review*. Natural England, Peterborough.

JNCC (2007). *Conservation Designations for UK Taxa – downloadable spreadsheet*. [jncc.gov.uk](http://jncc.gov.uk)

<b>Upland Haymeadows Actions</b>				
<b>Action priorities</b>	<b>Action Contact</b>	<b>Action Partners</b>	<b>Goal</b>	<b>Date</b>
1. Produce an inventory of remaining MG3 meadows and their condition.	Ian Craft	NPAONB, NE	inventory published	2008
2. Ensure that the process of restoration and enhancement of haymeadows continues beyond the Haytime project.	Rebecca Barrett	NPAONB, NE, DBP		2011
3. Continue to monitor Haytime project sites.	Ian Craft	NPAONB , NE		ongoing
4. Identify and manage key road verges with good quantities of MG3 species, or with rare lady's mantles.	Durham Biodiversity Partnership	DBP, DCC, NPAONB		
5. Develop a sustainable system for the harvesting of seed and propagation of plants for meadow enhancement works.	Ian Craft	NPAONB, DBP, DWT, DCC, NE		
6. Provide advice to landowners on managing upland haymeadows	Ian Craft	NPAONB		

# Transport Corridors Action Plan

LO7

Lead Partner: *Durham Biodiversity Partnership*. [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

Priority habitats or species:

Road Verges of Conservation Importance			

## Introduction

Many road, rail and cycle/walking routes have semi natural habitat associated with them. The linear nature of these strips of habitats means that for some species of plant and animal they could provide migration or dispersal routes between larger habitat patches.

Rough grassland and scrub associated with these corridors is often ideal for common invertebrates, small mammals, and consequently for barn owl and kestrel amongst others.

Many road verges are known to harbour areas of species rich grassland, which often approximate to the communities which exist or would have existed in farmland nearby. They are often the last remnants of a wildflower rich grassland in a locality, sometimes supporting rare invertebrates, which has been destroyed by intensive agriculture.

Some plants and invertebrates have undergone such a dramatic decline in the farmed countryside that the road verge is now their principal habitat (e.g giant bellflower), or an essential component of it ([small pearl-bordered fritillary](#)).

Railway corridors similarly provide ideal conditions for other Durham BAP species such as our [reptiles](#) which find good basking conditions and hibernacula , and for the [dingy skipper](#) which likes the early successional nature of many embankment sites. Damp cuttings are also good sites for amphibians such as the [great crested newt](#), and for developing [fen](#) vegetation.

There is a great variation in transport corridors in the plan area from disused railway cycle paths to major trunk roads. However, as recent surveys have shown, all of these corridors have the potential to support wildlife.

## Road Verges of Conservation Importance

In the Durham BAP area road verges of conservation importance have been defined as those roadside verges within a sensible management unit (i.e. between road junctions, field entrances etc.) which contain five or more species from a specified list within a 20m linear section (see Habitat Definitions for species list). This allows road verges which may not meet the size criteria for Local Wildlife Site designation as a grassland community, to have their importance recognised by those responsible for their management.

Road verges in the North Pennines are of particular importance to a number of rare [lady's mantles](#) (*Alchemilla* species). Nine species of lady's mantle grow in the Durham area, of which 5 are rare. *Alchemilla acutiloba*, *A. glomerulans*, *A. subcrenata*, *A. monticola* and *A. wichurae* are all red-listed under the 2001 IUCN criteria. All five are found on road verges in Teesdale and/or Weardale, while their former strongholds in haymeadows and some pastures have declined.

### **Current or recent activity**

- Road verge surveys have taken place in the North Pennines (2000 – 2005), and the Durham Magnesian Limestone (2005 - 2006) Natural Areas by the Durham Biodiversity Partnership.
- Creation of GIS tool holding all road verge survey information, including management prescriptions.
- Trial cut and rake by Durham County Council on priority verges in Weardale and Teesdale – 2005
- South West Durham Heritage Corridor Project – started 2006. A project to open a multi-user route on a disused railway line should lead to biodiversity enhancements along the route, as well as protection for habitats and species reported under the commissioned surveys.

### **Threats**

- Management of village and urban verges for non-native species, such as daffodils, removes local distinctiveness provided by a wild flora, and will eventually lead to loss of wild flora.
- Lack of management. Road verges that receive no treatment will eventually scrub over. Although this is not always undesirable, it is where scrub replaces wildflower-rich grassland.
- Excessive mowing where not entirely necessary for safety reasons leads to large areas of grassland slowly losing botanical diversity, and any invertebrate value immediately declines.
- Ground disturbance from utility companies, especially when the ground is reinstated with foreign or enriched soil, will encourage ruderal and/or competitive species.
- Tree planting in inappropriate places shades out wildflower rich grassland.
- Salt piles leach into the surrounding soils and kill plants. Placed in sensitive locations this leads to a rapid deterioration in habitat quality.
- Disused railways becoming multi-user routes could lead to habitat loss, without careful planning of routes.
- Overzealous clearance of railway routes for safety or visual amenity could damage a number of habitats, especially for bats and birds.

## Objectives

1. Review the extent and status of the current habitat resource within transport corridors in the DBAP area.
2. Maintain and where possible, improve the biodiversity value of transport corridors.
3. Raise awareness of the biodiversity value of transport corridors, and the importance of sensitive management.

## More information / references

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Transport Corridors Actions				
Action priorities	Action Contact	Action Partners	Goal	Date
1. Continue to survey road verges to locate those worthy of conservation effort	Durham Biodiversity Partnership	DBP, DWT, LAs	Up-to-date GIS layer	ongoing
2. Designate all road verge sites meeting criteria as Local Wildlife Sites.	Jim Cokill	DWT, DBP, LAs		2008
3. Ensure best road verge sites included in contract documentation for all local authorities	Durham Biodiversity Partnership	DBP, DWT, LAs		2008
4. Develop and implement a monitoring programme for road verges across Durham BAP area.	Durham Biodiversity Partnership	DBP, DCC, SCC, STC, GC, DC, DWT, NE, NPAONB		2008

5. Support good management of road verges by local authorities through management advice and by developing solutions to current problems (machinery availability, waste disposal etc.)	<b>Durham Biodiversity Partnership</b>	<b>DBP, DCC, DWT, NPAONB, EA, HA</b>		<b>ongoing</b>
6. Develop interpretation on selected road verges.	<b>Durham Biodiversity Partnership</b>	<b>DBP, DWT, NPAONB, DCC</b>	<b>5 prime sites</b>	<b>2009</b>
7. Develop a project to raise awareness amongst parish councils and the public about the importance of roadside verges and village greens for wildlife and about appropriate management.	<b>Durham Biodiversity Partnership</b>	<b>DBP, DWT, LAs, NPAONB, HA, A-one</b>	<b>publication &amp; campaign</b>	<b>2007</b>
8. Wear Railway Trust – develop a biodiversity survey and enhancement project.	<b>Durham Biodiversity Partnership</b>	<b>DBP, DWT, BTCV, WRT, DCC, WVDC</b>	<b>survey work undertaken</b>	<b>2008</b>
9. Work with A-one to improve habitat enhancement work on trunk road verges and share road-kill data.	<b>Jim Cokill</b>	<b>DWT, A-one, DBP</b>		
10. Make links with farmers to provide composting venues for verge cuttings	<b>Durham Biodiversity Partnership</b>	<b>FWAG</b>		
11. Create species-rich grassland on new verges established from cuttings and road extensions.	<b>Durham Biodiversity Partnership</b>			
12. Ensure that local authority and parish council verge cutting programmes target priority wildlife verges on roads for hay crop removal.	<b>Durham Biodiversity Partnership</b>	<b>LAs</b>		
13. Work with railway restoration projects to ensure that these include improvements for biodiversity	<b>Durham County Council</b>			



# Badger Action Plan

MA1

Lead Partner: *Lesley McNaughton – Durham Badger Group*. [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

Priority habitats or species:

Badger		<i>Meles meles</i>
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## Introduction

The badger is an instantly recognisable animal belonging to the *Mustelidae* family, a group of mammals that use secretions from the musk glands for communication. They are omnivorous, having a varied diet of nuts, berries, cereals, insects, beetles and small mammals as well as their staple diet of earthworms.

The badger uses a variety of habitats but preference is given to woodland surrounded by pasture with well-drained soil, essential for the excavation of setts. Badgers are principally nocturnal.

Badgers are protected by law under the Protection of Badgers Act 1992 because of a long history of persecution and decline. It is illegal to kill, injure or take any badger. It is illegal to damage, destroy or obstruct access to any part of a sett. A licence is needed from Natural England before any work goes ahead which will cause damage to setts or disturbance to badgers.

## Local status

The Durham Badger Group estimate the number of current active setts at 350, giving a population estimate of between 1000 and 1500 badgers in the Durham BAP area.

Badgers are widely, but not evenly, distributed through the Plan area. Setts are present in deciduous and mixed woodland, hedgerows, scrub, railway embankments, streamsides and old quarries. There has also been settlement in more urban and sub-urban areas.

The altitudinal limit is about 350m above sea level and is linked to habitat availability.

The Durham Badger Group has recorded and monitored setts for over 25 years, and also keeps records of road casualties, persecution incidents and disturbance of setts. Despite this effort there has been no comprehensive survey, and so there are gaps in the data.

## Current or recent activity

The Millennium National Federation of Badger Groups conference hosted by the Durham Badger Group at Durham University.

Durham Constabulary have made the 'Cyphermark' system available to the Durham Badger

group.

Durham Badger Group are involved in a sett reinforcement programme targeting setts at risk. They are actively involved in ecological surveys and planning applications, and have constructed a hide for educational purposes.

## Threats

- Destruction of habitat – including foraging areas, which can radiate out a mile from the sett.
- Fragmentation of habitat by development of human settlements.
- Road traffic is a significant cause of badger mortality each year.
- Persecution - including badger digging, badger baiting, use of illegal snares and sett stopping.
- Nationally, there are risks associated with TB and threat of culling but these have not materialised locally.
- Changing farming practices which reduce habitat diversity can lead to a loss of seasonal food items.
- Ignorance of the law - in relation to use of heavy machinery and disturbance around setts.

## Objectives

1. Protect, maintain and enhance habitat features required by badgers.
2. Increase knowledge of the status and distribution of badgers.
3. Protect and enhance existing badger populations.
4. Protection of wildlife corridors used by badgers.
5. Reduction of sett disturbance.

## More information / references

**English Nature (2002).** *Badgers and Development.* Natural England, Peterborough.

**Harris, S., Jefferies, D., Cheeseman, C., Booty, C. (1994).** *Problems with Badgers (third edition).* RSPCA.

## Badger Actions

Action priorities	Action Contact	Action	Goal	Date
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		<b>Partners</b>		
1. Develop and maintain a network of trained volunteers to undertake surveys and monitoring	<b>Lesley McNaughton</b>	<b>DBG</b>	<b>5 suitably trained volunteers available for survey work annually</b>	<b>ongoing</b>
2. Provide specialist advice re planning applications and related matters	<b>Lesley McNaughton</b>	<b>DBG</b>	<b>10 commissioned surveys conducted annually by the Badger Group</b>	<b>ongoing</b>
3. Analyse road kill data and highlight road kill hotspots to target signage and tunnel schemes	<b>Lesley McNaughton</b>	<b>DBG</b>	<b>hotspots identified and published</b>	<b>2009</b>
4. Develop projects to reduce road kill at roadkill hotspots	<b>Lesley McNaughton</b>	<b>DBG, DBP, DWT</b>	<b>one new project each year</b>	<b>ongoing</b>
5. Promote the reporting of badger roadkill sightings	<b>Durham Biodiversity Partnership</b>	<b>DBP, DBG, DWT, A-one, EYE</b>		
6. Promote an increase in woodland cover in areas with recorded badger populations	<b>Durham Biodiversity Partnership</b>			
7. Raise awareness of crime and persecution against badgers and promote the increased reporting of persecution	<b>Lesley McNaughton</b>			

# Bats Action Plan

MA2

Lead Partner: *Noel Jackson – Durham Bat Group*. [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

## Priority habitats or species:

<p>Bats - including Durham breeding sp.          Common pipistrelle 45kHz          Soprano pipistrelle 55 kHz          Nathusius' pipistrelle          Noctule bat          Daubenton's bat          Whiskered bat          Brandt's bat          Natterer's bat          Brown long-eared bat</p>			<p><i>Pipistrellus pipistrellus</i>  <i>Pipistrellus pygmaeus</i>  <i>Pipistrelle nathusii</i>  <i>Nyctalus noctula</i>  <i>Myotis daubentonii</i>  <i>Myotis mystacinus</i>  <i>Myotis brandtii</i>  <i>Myotis natterii</i>  <i>Plecotus auritus</i></p>

***Bats and their roost sites are fully protected by the Wildlife and Countryside Act 1981 (as amended 1985). They are listed on Annex IVa of the European Habitats Directive 1992 (EC Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora). All UK bat species are also listed on Appendix III of the Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1982) and all except the Pipistrelle are listed in Appendix II. All UK bat species are protected under the Agreement on the Conservation of Bats in Europe (under the Bonn Convention on the Conservation of Migratory Species of Wild Animals).***

## Introduction

Bats are nocturnal mammals, usually active just after dusk and sometimes just before dawn. Bats occupy a variety of roost sites, including man-made structures, as well as caves and hollow trees. Bats forage for flying invertebrates and may travel up to 20km from their roost sites. They require suitable feeding habitats as well as 'commuting' routes i.e. linear features, such as hedges, which enable them to navigate across open country and be sheltered from predators. Bats also occur in urban areas, gardens and parks, especially the common pipistrelle (*Pipistrellus pipistrellus*) which is our most abundant species.

Females congregate to form nursery colonies in late spring and young are born in June and July. They are weaned at about five weeks of age and the nursery roosts disperse around August. Some bat colonies, particularly those of pipistrelles and noctules, can be mobile and move regularly, especially in the summer months. Other species, such as brown long-eared, whiskered and Natterer's bats are more selective in terms of location of their colonies. All British bats hibernate during the winter when food is scarce. Lack of disturbance during hibernation or breeding is crucial for their survival.

Bats are harmless and generally cause no problems to the human tenants of buildings where they roost. Bats do not cause damage to property and problems of noise and smell from roosts are very uncommon.

Bats are widespread throughout the UK , with greatest species diversity in the south-west, and are found in both urban and rural areas. Currently there are 16 species of bat breeding in Britain , with other species occurring as vagrants.

All bat species have shown a dramatic decline in numbers in the last fifty years. Records from Victorian naturalists reveal that they were once far more common than they are today. Currently no bat species can be considered to be "common". It is estimated that the common pipistrelle declined by 70% between 1978 and 1993 (National Bat Colony Survey).

Of the 16 species of bat which breed in the British Isles , two species are endangered. Most bat species in the British Isles evolved in forests. Today, with the woodland cover much reduced, some species still live and feed in woodlands, while others, such as the pipistrelle have taken to living in houses and other buildings.

## **Local status**

The distribution of bats is concentrated along the woodland of the three main river corridors, the Derwent, the Wear and the Tees . The movement of bats from one valley to another is somewhat restricted by topography as well as intensive agriculture and industry. This makes known habitat corridors between river valleys particularly important.

There are eleven species of bat known to occur in County Durham , of which eight are known to breed:

**Common pipistrelles** are found on modern housing estates and are ubiquitous throughout the whole of the DBAP area.

**Soprano pipistrelles** are known to occur on the Tees , Wear and Derwent but are probably more widespread.

**Noctule bats** are localised in the area's mature woodland, in rural areas.

**Brown long-eared bats** are reasonably widespread, but localised. They require large undisturbed roof spaces within flying distance of suitable woods.

**Whiskered bats** are fairly widespread but localized. Roosts in the Durham area are of national importance.

**Brandt's bat** is much rarer and the roosts in the Durham area are of national importance.

**Natterer's bats** roost in trees and large roof spaces, where they can warm up before leaving; this is one of Durham 's rarer species.

**Daubenton's bats** are widespread along water courses and near water bodies through the region.

**Nathusius' pipistrelle** have been recorded feeding over the Tees at Cotherstone, near Bowes and near Whitworth on the Wear, but no roost sites are known.

Other species recorded are as follows:

**Serotine bat** (*Eptesicus serotinus*) - bat detector records only – probably animals indulging in post-breeding dispersal.

**Leisler's bat** (*Nyctalus leisleri*) – Three bat detector records in 2000 only – nearest known breeding site near Sheffield .

Levels of knowledge concerning bats vary widely between different regions of the UK . Consequently, it is difficult to assess the relative health of Durham 's bat populations. Also of relevance is the fact that the only information available about bats is comparatively recent. Bats have only been surveyed since 1981 and the first quantitative survey of bats was completed in 2000. Therefore, the database is limited.

Much of what is known about bats in the Durham area comes from the work of the Durham Bat Group. Enquiries from householders with regard to bats in and around their properties are an important source of information on the bats in the DBAP area. However species which do not use built structures are probably under recorded. For example Daubenton's bats can be seen and heard feeding over many stretches of inland water but relatively few roost sites are known. Natterer's bats roosts are difficult to locate but bat detectors surveys suggest that this species may be present in a number of woodland areas.

Underground sites, whether natural or man-made, are important hibernacula sites in Europe . Surveys of similar sites in the Durham area have revealed only small numbers of visible animals. Though numerous pipistrelle summer roost sites are known, many with 100-200 bats present, only two winter hibernation roosts are known. One of these has up to 100 individuals present. However a lack of information about pipistrelle roosts across the UK makes it difficult to assess this in a national context.

## **Current or recent activity**

### **Threats**

- Habitat loss - decreasing areas of deciduous woodland, hedgerows, wetlands and grasslands reduce the availability of feeding and roosting sites. Loss and drainage of wetlands and inappropriate riparian management leads to loss of feeding and roosting areas. Undeveloped land which does not meet the standards for designation as SSSIs or Local Sites probably forms the bulk of bats' foraging areas.
- Habitat fragmentation - the presence of linear features and wildlife corridors such as hedgerows and former railway lines between habitats can reduce the impact of fragmentation.
- Disturbance - disturbance in the summer may lead to the abandonment of young. Disturbance in the winter may arouse hibernating bats and force them to use up essential food reserves too quickly, with fatal consequences.

- Tree felling and tidying of dead/hollow trees - all bat species, and particularly noctules, will use hollow trees for both summer and winter roosting.
- Intensification of agriculture - this has led to the loss of high-quality feeding habitat as well as a reduction in insect biomass through the widespread use of pesticides. Larger bat species, such as the noctule, prey on larger invertebrates, especially large beetles and moths, which are now present in considerably reduced numbers. Cattle treatments for internal parasites using anthelmintics and the use of synthetic pyrethroid sheep dips have also contributed to this reduction in invertebrate numbers.
- Lack of awareness - there is a tendency for the needs of bats to be under-emphasised during the planning process. Listed Building Consent - consent for alteration and structural works on Listed Buildings can be obtained from Government Office North East (GONE) without the need for planning permission (which would be required for non-listed buildings). There is, at present, no monitoring system for this at GONE.
- Development - the loss of rear gardens to small scale housing developments results in habitat loss and reduces the structural diversity of foraging habitats for bats. Development of brownfield land is likely to lead to further habitat loss for bats.
- Refurbishment and demolition of man-made structures and buildings - roost sites in cellars, roof spaces and under eaves in buildings are lost through building maintenance, renovation and the installation of cavity wall insulation. It is now thought that bats may use cavity walls as hibernation roost sites. Bats have very specific roost requirements, such as bridges for Daubenton's bats- it cannot be assumed that they will relocate to another apparently suitable site if a roost site is destroyed.
- Remedial timber treatment - these can be poisonous to bats. Because of their communal nature, entire roosts may be lost due to insensitive timber treatment exercises. Lindane, a chemical that was widely used in the past, has been implicated in the eradication of entire bat colonies. Treatments carried out during the 1980s are still toxic today.
- Recreation - there is a potential negative impact upon bats in crevices on cliff faces from climbers.
- Cavers and mine researchers - these activities disturb hibernating bats in the winter and may also have an adverse effect in the autumn when the bats are swarming.
- Persecution, intolerance of, and a lack of understanding of the protection afforded to bats. Many householders are unwilling to host a bat roost in their homes because of misunderstandings with regard to the nature of the bats themselves and their perceived impact on their surroundings, particularly with regard to noise and droppings.
- Ineffective wildlife legislation and enforcement, combined with a lack of common knowledge regarding legislation.
- Cat predation - a significant number of bats are killed or injured by domestic cats.
- Lack of knowledge - the extent of losses to bat populations due to destruction or exclusion from roosts are hard to quantify because knowledge of roost locations is so limited. Very little is known

about the locations of winter hibernation roosts.

- Climate change - the UK climate is predicted to change, which is likely to have an effect on bats in both the summer and winter.
- Wind turbines – have been shown to cause death to bats and have potential to cause damage to bats if inappropriately sited.
- Changes to external lighting may pose a threat to existing and potential bat roosts.

<b>Objectives</b>	
1.	Maintain and enhance the range and population size of all bat species within the Durham BAP area
2.	Protect, maintain and enhance habitat features required by bats
3.	Create habitat networks which reconnect appropriate habitats and provide linear features such as hedgerows as navigational corridors between foraging and roosting habitats.
4.	Increase awareness and implementation of the legislation that protects bats in the UK.
5.	Encourage greater understanding amongst professionals such as planners, developers, builders, building regulators and engineers, of bat ecology and conservation
6.	Increase public awareness and participation in bat conservation.
7.	Increase research, survey and monitoring work into current bat populations and trends.

### More information / references

**DEFRA (no date).** *Bats, Buildings & Barn Owls – a guide to safeguarding protected species when renovating traditional buildings* . Defra leaflet. Natural England, Newcastle-upon-Tyne.

<b>Bats Actions</b>				
<b>Action priorities</b>	<b>Action Contact</b>	<b>Action Partners</b>	<b>Goal</b>	<b>Date</b>
1. Ensure the needs of bats are taken into account in planning applications and other strategies	<b>Noel Jackson</b>	<b>LAs</b>	<b>all authorities using Durham Bat criteria to identify potentially damaging planning applications</b>	<b>2007</b>
2. Provide training for planners, policy makers	<b>Noel Jackson</b>	<b>LAs</b>	<b>2 training events at local authorities per annum</b>	<b>annually</b>



and other professionals				
3. Raise awareness of the law with regard to bats to ensure it is enforced	<b>Natural England</b>	<b>NE, DC, DWT, DBat</b>		
4. Promote habitat connectivity and focus habitat creation and restoration work through GIS based opportunity map.	<b>Durham Biodiversity Partnership</b>	<b>DBP, DBat, DWT, LAs DEFRA, NE</b>	<b>GIS based opportunity map produced</b>	<b>2007</b>
5. Produce & distribute information leaflets to encourage people who find crashed, orphaned or injured bats to act appropriately	<b>Noel Jackson</b>	<b>DBP, DWT</b>	<b>Produce and distribute leaflet</b>	<b>2008</b>
6. Monitor and record bats roosts	<b>Noel Jackson</b>	<b>NE, LAs</b>	<b>database updated annually and summarised in annual report of DBG</b>	<b>annually</b>
7. Run public awareness events to encourage understanding of bat conservation	<b>Noel Jackson</b>	<b>DBP, DWT, NE, LAs</b>	<b>6 guided walks</b>	<b>annually</b>
8. Run public events to encourage participation in bat conservation	<b>Noel Jackson</b>	<b>DBP, DWT</b>	<b>recruit 5 people to bat monitoring scheme annually, 100 people counting bats in the Durham BAP area</b>	<b>annually</b>
9. Ensure effective measures to protect bats in local planning documents, development plans, local plans, unitary development plans and local development frameworks.	<b>Durham Biodiversity Partnership</b>	<b>DBP, LAs, DBat</b>	<b>review all documents</b>	<b>ongoing</b>
10. Increase awareness of bat-friendly measures that can be taken by householders, gardeners and land managers	<b>Noel Jackson</b>	<b>DBP, LAs,</b>		

# Farmland Birds and Mammals Action Plan

BI2

Lead Partner: *Natural England*. [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

## Priority habitats or species:

<p><b>Skylark</b>  <b>Corn Bunting</b>  <b>Tree Sparrow</b>  <b>Linnet</b>  <b>Reed Bunting</b>  <b>Yellow Wagtail</b> (see also <a href="#">Upland</a> Birds Action Plan)  <b>Snipe</b> (see also <a href="#">Upland</a> Birds Action Plan)  <b>Redshank</b> (see also <a href="#">Upland</a> and <a href="#">Coastal</a> Birds Action Plans)  <b>Curlew</b> (see also <a href="#">Upland</a> and <a href="#">Coastal</a> Birds Action Plans)  <b>Lapwing</b> (see also <a href="#">Upland</a> and <a href="#">Coastal</a> Birds Action Plans)  <b>Brown Hare</b></p>		<p><i>Alauda arvensis</i>  <i>Miliaria calandra</i>  <i>Passer montanus</i>  <i>Carduelis cannabina</i>  <i>Emberiza schoeniclus</i>  <i>Motacilla flava</i>  <i>Gallinago gallinago</i>  <i>Tringa totanus</i>  <i>Numenius arquata</i>  <i>Vanellus vanellus</i>  <i>Lepus capensis</i></p>
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## Introduction

Farmland birds have been declining nationally since the early 60's and this has been associated mainly with the rapid intensification of agricultural over this period, and the consequent loss of nesting habitat and food for birds and other animals.

Farmland birds have seen average population declines of 40% since 1970. The government has set a target to halt and then reverse the decline by 2020.

Brown hare is a UK BAP species, which has been in long term decline.

## Local status

**Skylark** An abundant resident and passage migrant in Durham , showing some local declines in recent years. Numbers are down by about 38% since 1994, in the region as a whole.

**Corn bunting** have decreased by at least 95% in the North East region since the 1970's. In Durham the population has become more coastal and is much reduced and fragmented. Uncommon, very local, and declining, but with a stronghold in Bishop Middleham.

**Tree sparrow** have decreased by at least 50% in the North East region since the 1970's. Locally

common but sparsely distributed in Durham . The provision of nest boxes has seen local increases in recent years. The vast majority of records are in the eastern lowland half of the County.

**Linnet** A very common and well distributed resident and passage migrant.

**Reed bunting** declined nationally by over 60% since the 1970s but remains widespread in lowland areas, breeding in low densities across most suitable habitat. Typically found near water be it rivers, ponds or ditches, it can also be found in drier localities, but always requires rank, tussocky vegetation.

The breeding population in the County is estimated at between 500 and 800 pairs. Birds gather in winter and concentrations of up to 50 birds (though 15-25 more typically) can be found at key winter feeding localities such as Bournmoor, Rainton Meadows and Chourdon Point.

**Yellow wagtail** A common summer visitor and passage migrant, but showing signs of decline. Breeding centred around mid-Durham and the Saltholme Pools area of the Tees Marshes.

**Redshank** A very common passage, winter visitor and breeder. The coastal stretch between Sunderland and South Shields is particularly important, but some inland wetlands also attract good numbers.

**Snipe** A common passage and winter visitor, and locally common breeding species. Concentrations in the south of the County, with large numbers not so widespread in the north.

**Curlew** A very common passage, winter visitor and breeder, but numbers have declined by about 16% in the North East since 1994. The Greatham Creek and Saltholme Pools area remains the best gathering point in the County, with widespread breeding sites in the uplands and more restricted breeding in the lowlands.

**Golden plover** A medium-sized wader which breeds on upland heather and grass moorlands and winters on agricultural grasslands and coastal areas. Durham has nationally important wintering numbers of golden plover, with significant populations found along the Tyne Estuary in Gateshead and in the Whitburn area of South Tyneside.

**Lapwing** An abundant passage and winter visitor and a very common breeder.

**Brown hare** Recent local surveys show that brown hare is still widespread in the Durham BAP area, although there is little information on population trends.

### **Current or recent activity**

- The Working with Waders project run by RSPB and the North Pennines AONB up to 2002 aimed to influence decision making with regard to wading birds and their habitat.
- Durham Bird Club's Bishop Middleham Wetlands Project has been ongoing since 2000, and has facilitated good management of private farmland for birds through agri-environment agreements, particularly through the development and management of wetland areas.
- Gateshead Council's habitat creation and restoration work at Lamesely Pastures and Burdon

Moor is primarily designed to help ground nesting waders.

- Durham Bird Club's Page Bank Biodiversity Project is aimed at farmland bird species and has included pond and hedgerow creation, and tree sparrow boxes.
- Supplementary winter feeding stations aimed at grey partridge, corn bunting, tree sparrow, reed bunting and linnet were set up in 2001/02 and 2003/04 in Easington District and Bishop Middleham.
- Tree sparrow box scheme (Tree sparrow 1000) launched in 2001 by the Durham Biodiversity Partnership. Over 200 boxes constructed and erected by 2003.
- Under Natural England's HLS scheme, Tree Sparrow and Corn Bunting are targeted for beneficial management.
- The Action for Wildlife Project has completed a survey of landowners to compile data on Brown Hare distribution across the Mineral Valleys Project Area.

## Threats

The main threats to farmland birds and mammals are:

**Shortage of winter food:** seed-rich stubbles have been replaced by winter planting, and mixed farming by monocultures. This is a particular problem for corn bunting, linnet, tree sparrow and brown hare.

**Shortage of spring food for chicks:** Pesticides have removed insect life from many farms, silage production has replaced flower-rich meadows, and drainage has reduced wet areas for insect breeding.

**Loss of nesting habitat:** Silage cutting makes grassland unsuitable for ground-nesting birds and disturbs brown hare during the breeding season. Winter cereals are too tall and dense to allow access by ground nesting birds after May, and field boundaries are less available and less suitable. This affects skylark, curlew, redshank, snipe, lapwing and brown hare.

**Nest destruction:** Increased stocking rates and increased spraying, rolling and harrowing can all destroy nests and reduce chick survival for the ground nesting birds.

Removal of scrub and loss of rank vegetation reduces suitable breeding areas for some species like reed bunting.

**Drainage** is a particular problem, reducing the availability of invertebrate food, and thereby the availability of suitable nesting sites. Curlew, snipe, redshank, lapwing and yellow wagtail are particularly affected.

**Hedgerow Loss** , in particular the loss of mature hedgerow trees, has reduced natural nesting sites for species such as tree sparrow.

**Habitat isolation** has a big effect on corn bunting, which is a fairly sedentary bird, and is increasingly isolated by surrounding unfavourable habitat.

## Objectives

1. Improve our knowledge of the distribution and status of farmland birds and mammals through research, survey and monitoring
2. Maintain existing populations and range of farmland birds in the DBAP area
3. Increase the area of habitat created as resting and feeding areas for ground nesting birds and brown hare.
4. Increase the number and quality of nesting sites for farmland birds
5. Increase the amount of wet lowland areas through reversal of drainage and pond creation.
6. Help effectively target agri-environment funding to increase populations of farmland birds, and to reconnect isolated populations.

## More information / references

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**RSPB, BTO, GCT, FWAG & MAFF (1995).** *A Management Guide to Birds of Lowland Farmland*

**British Ornithologists Union (1999).** *Ecology and Conservation of Lowland Farmland Birds*

Farmland Birds and Mammals Actions				
Action priorities	Action Contact	Action Partners	Goal	Date
1. Construct and erect tree sparrow boxes in appropriate locations	Durham Biodiversity Partnership	DBP, DBird, FWAG	100 boxes erected	2010
2. Establish and maintain feeding stations in areas with known populations of corn bunting and tree sparrow	Mark Newsome	DBird, DBP, DWT, FWAG	maintain x feeding stations	ongoing
3. Target agri-environment	FWAG	NE, DBird,	target	ongoing

schemes to holdings which would improve connectivity between isolated strongholds of corn bunting, and/or expand the range of tree sparrow.		RSPB, DBP, DWT, FWAG	holdings identified and mapped on GIS	
4. Produce an information pack for small land-holders which highlights actions for priority species, and distribute through Hedgerow Partnership and grant scheme	<b>Durham Biodiversity Partnership</b>	DBP, DCC, DBird, NMG, DWT, FWAG	produce pack	2009
5. Conduct a survey to provide a 5-year update on the distribution and population level of brown hare	<b>Durham Biodiversity Partnership</b>	DBP, DCC, NMG, DWT, FWAG	1 survey conducted	2009

# Pine Marten Action Plan

MA4

Lead Partner: *Terry Coult – Durham County Council*. [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

Priority habitats or species:

Pine Marten		<i>Martes martes</i>
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## Introduction

Pine martens are members of the Weasel family (*Mustelids*) and are related to the otter and the badger. Historically a species of woodland and upland with a wide UK distribution, persecution in the 19th century reduced pine marten distribution to the North West Highlands of Scotland, with some reported small relict populations in North Yorkshire and the North West of England.

Pine martens are generalist feeders taking a variety of small mammal and bird prey along with plant materials and invertebrates.

## Local status

In common with most of the UK the pine marten was declared extinct in the north east of England by the late 19th century, however in the 1960s and 70s pine martens began to be reported in Northumberland, North Yorkshire and rarely in Durham. Since that time there have been more reports of pine martens mostly in Northumberland and North Yorkshire, with a few road casualty corpses retrieved. In Durham the situation remains one of rumour and occasional reports of sightings. It is not known whether the north eastern pine marten population (should it be proven to exist) is the result of natural colonisation, introduction, escapes from fur farms or a combination of all three.

## Current or recent activity

All recent activity has concentrated on survey work to determine whether pine martens are present in the north east. Survey techniques include searching woodland rides and paths for pine marten scats (droppings) and the collation and assessment of reported sightings from the general public. Most survey work has been instigated by the Vincent Wildlife Trust. No firm conclusions have been reached on the status of the pine marten in Durham.

## Threats

If a small relict or newly established population exists then it could be subject to:

- the effects of isolation.

- persecution including accidental trapping and killing by game keepers.
- road traffic mortality.
- habitat fragmentation.

## Objectives

1. Establish and maintain a comprehensive understanding of pine marten distribution and status.
2. Protect, maintain and enhance habitat features required by pine marten
3. Increase the numbers and range of pine marten

## More information / references

**Strachan R., Jeffries D. J. and Chanin P. R. F.** *Pine Marten Survey of England and Wales , 1987-1988* . Vincent Wildlife Trust.

[www.vwt.org.uk](http://www.vwt.org.uk)

Pine Marten Actions				
Action priorities	Action Contact	Action Partners	Goal	Date
1. Erect artificial pine marten dens in suitable habitat.	<b>Durham Biodiversity Partnership</b>	<b>DBP, DCC, DWT, FC</b>	<b>15 boxes erected</b>	<b>2007</b>
2. Undertake annual survey of artificial pine marten den sites for 5 years to establish presence/absence.	<b>Durham Biodiversity Partnership</b>	<b>DBP, DCC, DWT, FC</b>	<b>annual survey</b>	<b>ongoing</b>
3. Co-ordinate local centres for collection and handling of roadkill carcasses (for otter, pine marten and polecat).	<b>Jim Cokill</b>	<b>DWT, DBP</b>	<b>two local centres kitted out and promoted.</b>	<b>2009</b>



# Polecat Action Plan

MA5

Lead Partner: *Terry Coult – Durham County Council*. [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

Priority habitats or species:

Polecat

*Mustela putorius*

## Introduction

The polecat is a member of the Weasel (Mustelid) family, related to the stoat, otter and badger. Occupying most rural habitats the polecat was formerly abundant throughout the UK. It became extinct in most areas excepting Wales in the late 19th century due to persecution.

In the later half of the 20th century the polecat began to expand its range outside of Wales and now occupies more 10km squares in England than in Wales. It is firmly re-established in the English West Midlands, with a continuous distribution from the southern fringes of Manchester to south Gloucestershire, and from the Welsh borders to the Peak District, Northampton and Oxford. Beyond this naturally recolonised range, populations derived from reintroductions are established in Cumbria, the East Midlands and central southern England.

## Local status

After having become extinct in the late 19th century the polecat has recently been reported in Cumbria, Northumberland and Durham. These animals may be the offspring of releases in Cumbria and may in some cases be polecat/ferret hybrids.

## Current or recent activity

The Vincent Wildlife Trust continues to collect road casualty polecats from around England.

## Threats

- Isolation through shrinking areas of semi-natural habitats such as woodland and wetlands
- Persecution
- Interbreeding – genetic dilution
- Road mortality
- Secondary poisoning from eating poisoned rats

## Objectives

1. Establish and maintain a comprehensive understanding of polecat distribution and status.
2. Protect, maintain and enhance habitat features required by polecats
3. Increase the numbers and range of polecats

## More information / references

**Birks J.D.S., & Kitchener A.** (no date) *The Distribution and Status of the Polecat in Britain in the 1990s.* Vincent Wildlife Trust

[www.vwt.org.uk](http://www.vwt.org.uk)

Polecat Actions				
Action priorities	Action Contact	Action Partners	Goal	Date
1. Promote the collection of Polecat roadkill and contribute to national recording efforts	Terry Coult	DCC , DWT , EA , A-one, DBP , the public		ongoing

# Water Vole Action Plan

MA7

Lead Partner: *Jim Cokill – Durham Wildlife Trust.* [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

Priority habitats or species:

Water Vole

*Arvicola terrestris*

## Introduction

The water vole is Britain's largest vole and attains a similar size to the brown rat. In the UK, as the name suggests, water voles are closely associated with water, favouring slow moving streams and rivers, canals, ponds and reedbeds. Water voles predominately inhabit burrow systems along streambanks and riverbanks, although they are known to build nests at the base of reeds and rushes and also nest within tussock forming vegetation. Water voles are almost entirely herbivorous, feeding on a range of material depending on the season, from emergent aquatic vegetation to the bark of riparian trees and shrubs.

Water vole numbers are thought to have declined dramatically by 93% in our area between 1990 and 1998-99, due to habitat loss and associated population fragmentation, which has made isolated populations vulnerable to predation by non-native mink and stochastic factors such as flooding and persecution by man. Conservation projects have demonstrated that in the correct habitat and with reduced predation pressure by mink water vole numbers can quickly recover.

## Local status

Water vole numbers have fallen nationally, but there is a general trend of higher numbers in the south and east of the country compared to the north and west. On a regional level Durham has some of the best populations, particularly in northern and eastern lowland areas and the valleys of the Tees and Wear in the North Pennines. The current population trend is uncertain, as there has been no co-ordinated survey effort since 1996-98, although a regional baseline survey is underway during 2006 and this should allow a trend to be established.

## Current or recent activity

- The Vincent Wildlife Trust have undertaken national surveys during 1989-90 and 1996-98.
- Durham Wildlife Trust's 'From Coals to Voles' project (2004-2007), collated survey data for north and east Durham to enable a strategic approach to large-scale habitat creation using agri-environment schemes.
- The North Pennines AONB Water Vole Project started in 2006 plans to produce an overview of water vole populations and the conservation measures required to safeguard the populations.
- The Environment Agency Regional Baseline Survey 2006 surveyed 400 sites, with population estimates, which will allow the population trend for water voles to be assessed.

- Suitable riparian habitat, including off-stream ponds, were established as part of various projects in Darlington, Derwentside, South Tyneside, Sunderland & Wear Valley.
- New habitat was created in Derwentside, Easington, Gateshead and Sunderland (more details on BARS).

## Threats

- Habitat fragmentation and population isolation.
- Inappropriate riparian management.
- Predation by mink.
- Persecution.

## Objectives

1. Maintain the current population and range of water voles within the Durham BAP area
2. Expand and improve existing habitat, create new habitat and connect goof habitat in order to link up water vole colonise and increase water vole population and distribution
3. Raise awareness and promote education of the status and need of the water vole
4. Establish and maintain a comprehensive understanding of water vole distribution, status and ecological requirements through research, survey and monitoring

## More information / references

**Strachan R. (1998).** *Water Vole Conservation Handbook*, Wildlife Conservation Research Unit, University of Oxford.

**Strachan et al (2000).** *Report on the Changes in Water Vole Population of Britain as Shown by the National Surveys of 1989-1990 and 1996-1998*, The Vincent Wildlife Trust.

## Water Vole Actions

Action priorities	Action Contact	Action Partners	Goal	Date
1. Seek continuation funding for the work of the Coals to Voles project in the east of the Durham BAP area	Jim Cokill	DWT, DBP		
2. Undertake survey for water voles in the North	Andy Lees	NPAONB, DWT	survey report	2007

Pennines				
3. Undertake survey for water voles in the wider DBAP area outside the North Pennines AONB	<b>Jim Cokill</b>			
4. Improve or create suitable riparian habitat for water voles in the North Pennines	<b>Andy Lees</b>	<b>NPAONB, DWT, NE, RWET</b>		
1. Improve or create suitable riparian habitat for water voles in the wider DBAP area outside the North Pennines AONB	<b>Jim Cokill</b>			
1. Continued monitoring of water vole populations	<b>Jim Cokill</b>			
1. Provide advice on Environmental Stewardship schemes, promoting actions to expand and improve existing habitat, creation of new habitat and connection of habitats.	<b>Jim Cokill</b>			

# Barn Owl Action Plan

BI5

Lead Partner: *Steve Evans – Durham Bird Club*. [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

Priority habitats or species:

Barn Owl		<i>Tyto alba</i>
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## Introduction

The barn owl is an iconic species of less intensively managed farmland, feeding on small mammals found in rough grassland. It is largely active at dawn and dusk, and roosts in trees and buildings, laying eggs in tree cavities, barns or other draught-free buildings.

Barn owl is widespread in the UK, but suffered a more than 50% decline in the latter half of the 20th century. The main factors in this decline are thought to include loss of rough grassland due to intensive farming, poisoning by pesticides, persecution and high winter mortality in severe winters.

An increase since the mid 1970s in breeding success and survival rates corresponds to a decline in the levels of organochlorine pesticide residues in barn owl corpses.

## Local status

A recent revival in the numbers of barn owls seen in the Durham BAP area might be related to a number of additional factors. Lack of snow cover in Durham during the winter in recent years may be one. The expansion of rough grassland areas as part of young tree planting projects in the Great North Forest may be another, although some of this resource will be lost as the trees mature on parts of the sites.

The barn owl is widespread but sparse in the Durham BAP area, with local concentrations east of Durham City and towards the coast, in the north-west of the area and Gateshead and south of Durham City.

## Current or recent activity

Recent and current agri-environment schemes – Countryside Stewardship and Environmental Stewardship – have started to provide additional rough grassland areas along field margins.

The Durham Bird Club continues to manufacture and erect barn owl boxes, to advise others on locating boxes and provide monitoring for many of the known nesting sites.

The Durham Biodiversity Partnership created and erected over 25 barn owl boxes in the Wear and Tees areas using funding through the Mineral Valleys Project.

HMP Holme House and HMP Frankland have manufactured barn owl boxes for the Durham

Biodiversity Partnership using funding from the County Durham Environment Trust (CDENT).

## Threats

- Loss of rough grassland habitat.
- Loss of suitable nest sites due to decline in the number of hedgerow trees, and the re-development of farm buildings.
- Increased deaths of barn owls from road accidents.
- Low level poisoning by pesticides suppresses breeding performance of barn owls.
- Harsh winter weather.

## Objectives

1. Maintain and seek to increase existing populations and range of barn owls in the DBAP area.
2. Increased provision of barn owl nesting sites / nest boxes in appropriate undisturbed locations in good barn owl habitat to encourage range and population expansion.
3. Provide suitable habitats to ensure the long-term success of barn owl populations in the DBAP area.
4. Reduce barn owl road casualties on major roads.
5. Continue monitoring of barn owl populations.

## More information / references

**Armstrong A.L. (1988-1996).** *Birds in Durham* Durham Bird Club.

**Barn Owl Trust (1995).** *Barn Owls on Site – A guide for Developers and Planners.*

**Bowey K. (1993).** *The Barn Owl in County Durham : its history and current status* Vasculum Vol. 78, no. 3, p51-63.

**English Nature (1995).** *Species Conservation Handbook. Birds 16. Barn owl conservation and the role of captive-bred releases.* Peterborough.

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**Taylor I. (1994).** *Barn owls: Predator-prey Relationships and Conservation* . Cambridge University

Press.

<b>Barn Owl Actions</b>				
<b>Action priorities</b>	<b>Action Contact</b>	<b>Action Partners</b>	<b>Goal</b>	<b>Date</b>
1. Undertake a long term survey for barn owl sightings targeted at dawn/dusk workers such as taxi drivers.	<b>Steve Evans</b>	<b>DBird, DBP, DWT, DCC</b>	<b>survey launched</b>	<b>2008</b>
2. Identify road casualty hotspots through survey data.	<b>Steve Evans</b>	<b>DBird, DBP, DWT, A-One</b>	<b>GIS layer at DWT</b>	<b>2008</b>
3. Manufacture barn owl boxes for internal and external mounting.	<b>Durham Biodiversity Partnership</b>	<b>DBP, HMPS, DBird, DWT</b>	<b>40 boxes</b>	<b>2010</b>
4. Erect barn owl boxes in target locations suggested by Durham Bird Club.	<b>Steve Evans</b>	<b>DBird, DBP, DWT, LAs</b>	<b>40 boxes</b>	<b>2010</b>
5. Keep and update a database of barn owl box locations and related surveys.	<b>John Olley</b>	<b>DBird, DBP</b>	<b>current database copy at DWT</b>	<b>ongoing</b>
6. Identify and communicate opportunities for tree planting/landscape design schemes adjacent to major roads.	<b>Durham Biodiversity Partnership</b>	<b>DBP, DBird, A-One, LAs</b>	<b>one example scheme completed</b>	<b>2010</b>



# Upland Birds Action Plan

BI3

Lead Partner: *Chris McCarty – Natural England*. [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

## Priority habitats or species:

<b>Black Grouse</b> <b>Dunlin</b> <b>Hen Harrier</b> <b>Merlin</b> <b>Peregrine</b> <b>Raven</b> <b>Ring Ouzel</b> Yellow Wagtail (see also <a href="#">Farmland</a> Birds Action Plan) Curlew (see also <a href="#">Farmland</a> & <a href="#">Coastal</a> Birds Action Plans) Snipe (see also <a href="#">Farmland</a> & <a href="#">Coastal</a> Birds Action Plans) Redshank (see also <a href="#">Farmland</a> & <a href="#">Coastal</a> Birds Action Plans) Lapwing (see also <a href="#">Farmland</a> & <a href="#">Coastal</a> Birds Action Plans)		<i>Tetrao tetrix</i> <i>Calidris alpina</i> <i>Alauda arvensis</i> <i>Falco columbarius</i> <i>Falco peregrinus</i> <i>Corvus corax</i> <i>Turdus torquatus</i> <i>Motacilla flava</i> <i>Numenius arquata</i> <i>Gallinago gallinago</i> <i>Tringa totanus</i> <i>Vanellus vanellus</i>
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## Introduction

The priority species covered by this plan are all species for which the North Pennines is an important area for breeding. In particular the North Pennines area is of both national and international significance for its upland breeding wader assemblages and breeding merlin.

In many cases the priority bird species are ground nesting, requiring heather or tussocky grassland of varying heights in relatively undisturbed areas. Wet substrates are often favoured for feeding. Others utilise gullies and rocky outcrops for nesting, or increasingly trees on the edges of plantation woodland. All are vulnerable to disturbance and changes in land-management.

## Local status

### Birds of prey and corvids

**Hen Harrier** is the most intensively persecuted of the UK 's birds of prey. Once predated free-range fowl, earning its present name, its effect on the number of grouse available to shoot is the cause of modern conflict and threatens its survival in some parts of the UK. Breeding success is monitored closely in the Durham BAP area by Natural England.

**Merlin** is the UK 's smallest bird of prey and is a short distance migrant. The UK breeding population is at the south-west extremity of the merlin's European range, and is thinly scattered across upland moorland from south-west England north to Shetland. In winter the UK population increases as most of the Icelandic breeding birds migrate to our warmer climate.

Merlin traditionally breed on ground amongst heather, but increasingly nests are being found in trees, particularly old crow's nests on the edges of conifer plantations. Merlin is currently

recovering from a population crash in the late 20th century as a result of the widespread use of organochlorine pesticides.

**Peregrine** breeding strongholds in the UK are the uplands of the north and west and rocky seacoasts. Peregrines have suffered persecution from gamekeepers and landowners, and been a target for egg collectors, but better legal protection and control of pesticides (which indirectly poisoned birds) have helped the population to recover considerably from a low in the 1960s. Some birds, particularly females and juveniles, move away from the uplands in autumn.

**Raven** is a resident bird of western mountains and coastal cliffs but also, and increasingly, of moorland. Once widespread in Britain, it was lost from the lowlands by the end of the 19th century through persecution. A partial recovery followed the two world wars, but declines have continued in parts of the country and breeding productivity fell during the 1980s for reasons which are not well understood.

### **Wading birds**

**Curlew** is a ground-nesting bird which breeds primarily in the uplands. It has declined in Europe, both as a breeding and wintering species. Loss of breeding habitat to forestry and the switch to improved grasslands from hay meadows and low intensity pasture are two causes.

Curlew are waders that select tall vegetation and nest within tussocks on rough grazing or hill allotments or in taller vegetation of traditionally managed hay meadows. Meadows managed for silage may be too dense to attract Curlews and are cut too early to allow chicks to fledge. Damp field corners that are left uncut are important feeding areas for unfledged chicks. Extensively grazed pasture with cattle can often create the ideal tussocky conditions that curlew like, but careful management of stocking levels during the breeding season is necessary to prevent egg and chick losses. The late cutting of traditional hay meadows benefits nesting curlews by allowing young to fledge before harvest.

**Dunlin** from Russia and northern Europe winter in large numbers on the UK coast, but our own breeding population of approximately 9,000 pairs flies south for the winter. Dunlin tends to breed at higher altitudes in the north pennines than other waders, on wet upland moors in tussocky vegetation. Breeding numbers have declined in recent years due to changing land-uses in the uplands, particularly forestry and drainage.

**Lapwing** Lapwings in England and Wales have declined by 49% between 1987 and 1998. In contrast to this in recent years, many breeding waders have undergone increases within the North Pennines, probably as a response to the traditional agricultural practices of the local area. Shepherd has demonstrated increases in populations of lapwing (50%) and snipe (49%) between 1995 and 2005.

Lapwing are one of the easiest species to manage grassland for, as they will tolerate the widest variety of conditions and are found nesting in a range of different habitat types from spring sown crops to former open-cast sites. In a typical inbye grassland system, lapwings favour a short sward between four and 10cm in height on a field with open aspect free of trees or other obstructions. Areas of scattered rushes and tussocks are needed for chick hiding and bare areas and dung patches for camouflage and during nesting. Areas of nearby shallow water with muddy margins and damp areas of grassland will provide feeding habitat for adults, and chicks during their development.

**Redshank** breed in a variety of habitats from saltmarshes to freshwater marshes and upland pasture. The numbers breeding on farmland are declining, due to drainage. Overgrazing of coastal marshes is also removing breeding habitat and breeding birds are increasingly dependent on nature reserves.

In the uplands redshanks are a wet grassland specialist feeding on insects at the edges of pools and ditches. They are most likely to be found in fields with mosaics of short damp grassland for feeding and grass or rush tussocks for resting. Areas of grassland can be improved for redshank by raising water levels from blocking drains and ditches or creating shallow pools and scrapes, and through controlled grazing.

Snipe breeds on moorland bogs and wet pastures in the uplands, and in fenland and marshes in lowlands. Breeding habitat for Snipe has been reduced over the centuries as wet grasslands, fens and bogs have been drained, and more recently improved drainage and ploughing of old grasslands. Increasingly birds are dependent on nature reserves and protected areas.

Snipe are waders that are dependent on damp soft soils and a good range of tall vegetation. Snipe need an open tussocky sward that provides tall vegetation for nesting and concealment along with areas of short vegetation for feeding. A high water table close to this vegetation is crucial during the breeding season, so the presence of scrapes and wet gutters help provide the snipe's ideal mix of habitats on a localised scale.

### **Other species**

**Black grouse** is one of the most rapidly declining birds in the UK . Once widespread across Britain , there has been a serious decline in numbers over recent decades and populations have become fragmented . Positive habitat management is helping numbers to increase in the North Pennines and the population has in fact now expanded from 773 males in 1998 to 1,029 males in 2006. Black Grouse require a mosaic of nearby habitats including heather moorland, grassland, hay meadows and open woodland or woodland edge.

**Ring Ouzel** is a summer visitor which breeds in mature heather in gullies on moorland, around farms, forest edges and around old quarries, in upland areas of Britain . They require a mosaic of mature heather, bracken pockets and short turf.

There has been a progressive decline in population over a long period and a further decline of more than 50% in the last 10 years. Forestry will have removed some previously suitable sites, grazing pressure may have removed sources of late summer food, and there is anecdotal evidence from the foot and mouth outbreak that human disturbance from recreation can have a serious impact on breeding numbers.

**Yellow wagtail** is a formerly common summer visitor and passage migrant, but is experiencing decline nationally and in the Durham BAP area. Breeding is centred around mid-Durham and the Saltholme Pools area of the Tees Marshes, but is also found in grazed pasture and hay meadows in the Pennine dales.

### **Current or recent activity**

The Working with Waders project run by RSPB and the North Pennines AONB Partnership up to 2002 aimed to influence farm management, decision making and local awareness with regard to

wading birds and their habitat in the North Pennines .

Publication of 'Birdwatching in the North Pennines' by the North Pennines AONB Partnership.

The North Pennines Black Grouse Recovery Project has been running since 1996, a partnership between [The Game Conservancy Trust](#) , [Ministry of Defence](#) , RSPB, [Northumbrian Water](#) , [SITA Trust](#) , [North Pennines AONB Partnership](#) and [Natural England](#) . The project encourages farmers and landowners to improve the conditions for black grouse on their land, including reducing grazing on the moor edges and adjacent rough pastures, the re-establishment of traditional hay meadow management, planting of small-scale upland ghyll woodlands and control of predation.

Pastures for Plovers is an agri-environment initiative by RSPB, operating in the North Pennines AONB, that aims to deliver advice to farmers and land managers on environmental management to benefit breeding wading birds. Funding to continue the project after march 2008 is being sought.

## Threats

- Persecution remains a threat for some birds of prey, and particularly for Hen Harrier. The influence of persecution on hen harrier success or otherwise is hotly contested by gamekeeping and conservation interests.
- Increasing disturbance through human recreation and by dogs is a serious potential threat to breeding success for many of the upland species, most of which are ground nesters, or which often nest near to climbing routes.
- Drainage of upland peat and of pastures and more intensive grassland management has deprived many species of important feeding and nesting sites and remains a threat.
- The effects of climate change are as yet unknown, but may include increased rainfall at critical times of the year for breeding success, and/or reduced precipitation overall leading to drying out of critical wetland habitats. Birds breeding at higher altitudes, such as Dunlin, may be most at risk.
- Badly timed farming operations. Many wading birds have eggs destroyed by spring operations such as chain harrowing.
- Poor livestock management. Overgrazing reduces diversity of structure needed by wading birds, and excessive grazing in spring increases the risk of egg trampling for ground nesting species. Undergrazing, leading to rush infestation and loss of breeding wader habitat, can also be an issue in some locations.

## Objectives

1. Maintain existing populations and range of upland birds in the DBAP area.
2. Improve our knowledge of the distribution and status of upland birds.
3. Improved dialogue between gamekeeping and conservation parties over moorland

management for grouse and its effect on birds of prey (and vice versa).

4. Protect, and improve the management of, important breeding and feeding habitat areas.
5. Increase the area of upland habitat which supports upland birds, including hay meadows, moorlands, and in-bye pasture.
6. Increase public awareness of the habitat requirements of upland birds and suitable management regimes.

## More information / references

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Upland Birds Actions				
Action priorities	Action Contact	Action Partners	Goal	Date
1. Promote late cutting of hay meadows to benefit breeding waders and yellow wagtail in the North Pennines	John O'Reilly	NPAONBP, NE		Ongoing as part of Hay Time project (to October 2009)
2. Introduce small scale wild bird cover plots in the North Pennines to benefit key species such as black	Rebecca Barrett	NPAONBP, RSPB	Initiative developed	2009

grouse and twite				
3. Facilitate rewetting of moorland through grip blocking in the North Pennines	<b>Paul Leadbitter</b>	<b>NPAONBP, NE, EA</b>		<b>Ongoing as part of Peatscapes project</b>
4. Provide advice, training and support to farmers to facilitate improved land management to benefit breeding waders and other key upland birds in the North Pennines	<b>Gary Woodburn</b>	<b>RSPB, NPAONBP, NE</b>	<b>Follow on project to Pastures for Plovers launched</b>	<b>April 2008</b>
5. Promote cattle grazing as a means of managing in-bye pasture and hay meadows	<b>John O'Reilly</b>	<b>NPAONB, Natural England</b>		<b>Ongoing as part of Hay Time project (to October 2009)</b>
6. Ensure that woodland planting undertaken in the North Pennines benefits upland bird populations	<b>Andy Lees</b>	<b>NPAONB</b>		<b>2011 (as part of Living North Pennines project)</b>
7. Promote conservation of hen harriers in the North Pennines and seek to address illegal persecution	<b>Hen Harrier Recovery Project</b>	<b>NPAONB, Natural England</b>		

# Urban and Garden Wildlife Action Plan

BI4

Lead Partner: *Tammy Morris Hale –Sedgefield District Council.* [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

## Priority habitats or species:

Song Thrush House Sparrow Starling Hedgehog			<i>Turdus philomelos</i>
			<i>Passer domesticus</i>
			<i>Sturnus vulgaris</i>
			<i>Erinaceus europaeus</i>

## Introduction

This plan is primarily concerned wildlife, which has an association with gardens and urban and sub-urban areas. In particular the plan focuses on four species of concern - **song thrush, house sparrow, starling** and **hedgehog**. None of these species are confined to urban areas, but they are commonly seen around towns and villages, and the focus of our efforts to conserve them relies largely on the efforts of individual people who live in these areas.

There is a great deal of wildlife that lives in gardens and parks in urban areas, and some species are well adapted to these habitats. There is also a great deal that urban dwellers, and gardeners in particular, can do for wildlife. This includes planting a variety of plants, not using chemicals in the garden and not tidying up too much. Excessive tidying is a real problem for wildlife, which is trying to find a place to over-winter.

All the species in this plan are in decline nationally, and for a variety of reasons.

## Local status

All three birds are on the BTO Red List due to their rapid decline over recent decades.

In County Durham the **song thrush, starling** and **house sparrow** populations are fairly stable at low numbers. Due to agricultural intensification these species are relying more and more on gardens for nesting sites as well as for a food source. Both the **starling** and the **house sparrow** are faring fairly well in County Durham with a steady increase in population figures since 2004. The **song thrush** however has suffered a slight decline in population figures during the same period.

The **hedgehog** is thought to be in a population 'nosedive' nationally, and particularly in the east of the UK. Researchers at the University of London have estimated a 50% decline in population in the last 15 years. However so little is known about the hedgehog population, population dynamics or the causes of this decline that it is difficult to predict the future for hedgehogs. It is thought that the decline has been largest in the farmed landscape and in urban areas, and that the relatively heterogeneous landscapes of suburbia or the urban fringe may provide the best opportunities for

hedgehog survival.

## Current or recent activity

- Current activity is focused on the education of the public to bring about more nesting sites, and wildlife friendly gardens.
- All three schemes under the Environmental Stewardship Programme focus on improving farmland for the conservation of wildlife and biodiversity, the **song thrush** is a species noted to gain from changes in agricultural practises for the benefit of wildlife.
- RSPB's Garden Bird Watch is an important vehicle both for raising awareness as well as providing vital statistics on the fluctuating species populations.
- The BTO (British Trust for Ornithology) carries out annual breeding bird surveys that are also an important resource providing regional information on the different bird species.
- The **starling** is one of the birds covered by Durham Bird Club's '*Durham Dozen*' project. The species involved in this project are species that are easily identified, represent a range of habitat types, and have all suffered rapid decline over recent decades.

## Threats

- Increased agricultural intensification.
- Loss of hedgerow and associated habitat means loss of foraging ground for hedgehog.
- Fragmentation of urban habitat and loss of urban wild places means loss of connected foraging habitat for hedgehog.
- Drainage of damp ground.
- Depletion of woodland scrub layers and canopy closure.
- Increase in the use of farm chemicals.
- Loss of habitat (permanent pasture/mixed farming).
- Widespread loss of hedgerows – this has led to the reduction in available nesting sites, as for many other farmland birds.
- Loss of nesting sites and food resources (increased hygiene regulations on farms means that farm buildings are sealed, and the mechanisation of grain harvesting means a reduction in the sparrows access to food).



## Objectives

1. Determine the current distribution and status of urban birds and hedgehogs.
2. Encourage suitable management of urban habitats to maintain populations of urban birds and hedgehogs.
3. Promote wildlife-friendly gardening in urban and sub-urban areas.
4. Develop urban habitat networks with sufficient unmanaged space to support viable populations of hedgehogs in urban areas.

## More information / references

**RSPB** *Birds of Conservation Concern – Red List*. RSPB, Sandy, Beds

**BTO** (British Trust for Ornithology) co-ordinate most of the national bird surveys including: *Breeding Bird Survey 2005 (BBS)*; *Common bird survey (CBC)*. They also provide more information on regional differences in species populations: [www.bto.org](http://www.bto.org)

**RSPB** *State of the UK's Birds 2005* report. [www.rspb.org.uk](http://www.rspb.org.uk)

**RSPB** *The Big Garden Birdwatch*. [www.rspb.org.uk](http://www.rspb.org.uk)

Urban and Garden Wildlife Actions				
Action priorities	Action Contact	Action Partners	Goal	Date
1. Publicise the detrimental effects of slug pellets on Song thrush and Hedgehog.	Durham Biodiversity Partnership	DBP, LAs, DBird, BBC		
2. Promote regular public surveys for urban and garden wildlife, alongside information on conservation.	Durham Biodiversity Partnership	DBP, LAs, DBird, DWT, NMG, BBC	2 survey campaigns	2008
3. Produce house sparrow nesting boxes for free distribution to schools, businesses and others.	Durham Biodiversity Partnership	DBP, LAs, DBird, DWT, BBC, HMPS	200 boxes distributed	2010
4. Raise awareness of urban and garden wildlife and encourage wildlife friendly gardening practices.	Durham Biodiversity Partnership	DBP, LAs, DWT		

# Reptiles Action Plan

RE1

Lead Partner: *John Grundy*. [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

Priority habitats or species:

<b>Adder</b> <b>Slow-worm</b> <b>Common Lizard</b> Grass Snake (see also <a href="#">Grass Snake</a> Action Plan)		<i>Vipera berus</i> <i>Anguis fragilis</i> <i>Lacerta vivipara</i> <i>Natrix natrix</i>
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## Introduction

This plan is concerned primarily with the three live-bearing species of reptile found in the Durham area. [Grass snakes](#), which lay eggs, and consequently have a more limited distribution in Durham due to a lack of suitable egg laying sites, are dealt with in a separate action plan. They will, however, benefit from some actions in this plan.

All reptiles need external heat sources to raise their body temperature -basking in the sun, or on warm surfaces. This means that most reptiles hibernate between October and March. Even outside this time their behaviour is influenced by weather conditions. They are typically active in warmer weather, but will seek shade on very hot days. Upper temperature thresholds vary for the three species.

**Adders** (and **grass snakes**) have fairly large ranges (several kilometres), while the common lizard will stay close to small landscape features such as embankments.

Whilst adders and lizards will bask in the open, **slow-worms** are generally better hidden in vegetation, or under rocks and other debris.

**Adders** eat mostly reptiles and small mammals, common lizard feeds on invertebrates such as insects, spiders and woodlice, and **slow-worms** tend to eat more soft-bodied species such as slugs.

Reptiles require a varied habitat structure that provides a range of shady and sunny spots for body temperature control, as well as frost free areas to spend the winter. They prefer well-drained geology.

## Local status

The north-east of England is of high conservation importance for the adder, because of its relative scarcity and its apparent decline elsewhere in the UK. **Adders** are widely distributed in the west of Durham, particularly in the dales and moors of the North Pennines (favouring rocky tributary valleys over higher moors), but local population trends are unknown.

**Slow-worm** is probably under-recorded, but is more widely distributed than the adder. **Slow-worm** is found in the North Pennine valleys, particularly along rocky streamsides, in old quarries and on mining spoil. It is also recorded from the Durham coast, particularly the dene mouths. It may well still occur in other lowland, especially heathland, sites. Some sites are known to have been lost to 'tidying up'.

**Common lizard** is widespread, but uncommon in the Durham area. It favours south facing slopes of the Pennine dales, particularly open heathland and disused quarries and workings. More fragmented populations are found in lowland areas and on the coast.

## **Current or recent activity**

A number of commercial surveys as well as public surveys and records from naturalists, has given us a relatively good outline distribution map for **adder** and **slow-worm** .

There are a number of monitored reptile sites.

Habitat management work at Pow Hill Country Park, Greencroft LNR, Cleadon Hills and Hamsterley Forest has been targeted at reptiles.

## **Threats**

### ***Habitat loss and modification:***

- Heather moor management involving burning is likely to threaten populations of reptiles.
- Loss of heathland is a direct habitat loss
- Overgrazing or regular strimming of vegetation removes resting and feeding areas.
- Overtidying, such as removal of rubble, earth and debris piles removes basking and overwintering sites
- Neglect, or afforestation of suitable sites leads to shading and loss of basking areas.
- Infilling or reworking of disused quarries leads to loss of suitable habitat.

### ***Disturbance:***

- **Adders** and **common lizards**, which bask in the open, are intolerant of human disturbance, and may suffer from increased public access to sites.

### ***Poor knowledge of distribution:***

- All reptiles sites, but slow worm sites in particular, may be destroyed unknowingly if there is insufficient data available to developers and ecologists.

## Objectives

1. To maintain and enhance populations of native reptiles in the DBAP area and where possible expand existing populations through conservation management and site protection
2. To safeguard all known or historic reptile sites, and ensure their appropriate management.
3. To develop our knowledge of the distribution and ecology of reptiles across the Durham BAP area
4. To increase awareness and understanding of reptile species and their habitat requirements amongst land owners, land managers, voluntary organisations and the general public.

## More information / references

**Baker J., Suckling J. & Carey R. (2004).** *Status of the adder (Vipera berus) and slow worm (Anguis fragilis) in England.* EN Research Report 546. Natural England, Peterborough.

**Corbett, K. (Ed.) (1989).** *Conservation of European reptiles and amphibians.* Christopher Helm, Bromley

**English Nature (2005).** *Reptiles in your garden.* EN

**English Nature (2005).** *Reptiles: guidelines for developers .* EN

**Frazer, D. (1983).** *Reptiles and amphibians in Britain.* Collins, London

**Froglife.** *Snakes Need Friends – Advice Sheet 2.*

[www.froglife.org](http://www.froglife.org)

Reptiles Actions				
Action priorities	Action Contact	Action Partners	Goal	Date
1. Create reptile hibernacula in target locations	<b>Durham Biodiversity Partnership</b>	DBP, FC, DWT, DCC, DDC, CLSDC, GC, WDC, TDC.	20 new hibernacula in appropriate locations.	2010
2. Develop Local Wildlife Site criteria for reptile sites.	<b>Jim Cokill</b>	DWT, DBP	criteria included in LWS guidance	2008
3. Create suitable basking or hibernation sites in undisturbed places next to	<b>John Grundy</b>	DBP, NERAG		

suitable reptile habitat.				
4. Promote appropriate management for reptiles at known and historic reptile sites	<b>Durham Biodiversity Partnership</b>			
5. Carry out regular surveys to plot the distribution of reptiles in the DBAP area.	<b>Durham Biodiversity Partnership</b>	<b>NERAG</b>		
6. Design & commission a project to monitor and protect reptiles on heathland sites.	<b>Durham Biodiversity Partnership</b>	<b>DBP</b>		

# Great Crested Newt Action Plan

WE5

Lead Partner: *Jim Cokill – Durham Wildlife Trust.* [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

Priority habitats or species:

Great Crested Newt

*Triturus cristatus*

## Introduction

The Great Crested Newt is the largest of the three species of newt that are native to the UK. The other two are the smooth newt (*Triturus vulgaris*) and the palmate newt (*Triturus helveticus*). Great Crested Newts are usually seen in ponds, but the surrounding land is of equal importance. Ponds are used for breeding and the development of eggs and tadpoles, and are usually occupied between spring and late summer. The surrounding land is used all year by immature newts and most newts will spend winter on land.

The species has suffered a decline in recent years with studies in the 1980s indicating a national rate of colony loss of approximately 2% over five years. It is estimated that there are a total of 18,000 ponds containing great crested newts within Britain, although only 3,000 of these have been identified. The British population is amongst the largest in Europe, where it is threatened in several countries.

The great crested newt is listed on Annexes II and IV of the EC Habitats Directive and Appendix II of the Bern Convention. It is protected under Schedule 2 of the Conservation (Natural Habitats, etc.) Regulations, 1994, (Regulation 38) and Schedule 5 of the WCA 1981.

## Local status

The great crested newt is still quite widespread in Britain. It is widespread but local in Scotland, where there are fewer than 1000 individuals. The species may be numerous locally in parts of lowland England and Wales but is absent or rare in Cornwall and Devon. It is absent from Northern Ireland.

In the Durham area, fortunately, there has been a great deal of survey effort, so distribution is generally well known, with the greatest population density in the lowland areas around Darlington and lowest in upland areas and in the northern parts of the DBAP area (Gateshead and South Tyneside).

## Current or recent activity

Several pond creation schemes targeting Great Crested Newts across lowland parts of the Durham BAP area, particularly Darlington, Derwentside & Gateshead. (2000-2004)

Designation of Pity Me Carrs as an LNR (2001).

Collation of survey data and production of the North East Amphibian Atlas by J. L. Durkin (2006).

## Threats

- Habitat loss due to development, despite legal protection.
- Loss of unrecorded populations.
- Introduction of fish to ponds.

## Objectives

1. Establish and maintain an understanding of the distribution and status of great crested newts through survey and monitoring.
2. Conserve and maintain existing populations of great crested newts preventing further site loss or fragmentation.
3. Raise awareness of the status and needs of the great crested newt and promote appropriate habitat management.
4. Enhance the range, distribution and viability of existing great crested newt populations through the restoration or creation of open water near existing populations.

## More information / references

**Durkin J. L. (2006).** *North East Amphibian Atlas*, unpublished.

**UKBAP.** *Great Crested Newt Species Action Plan.*

[www.ukbap.org.uk](http://www.ukbap.org.uk)

Great Crested Newt Actions				
Action priorities	Action Contact	Action Partners	Goal	Date
1. Seek to increase breeding success at sites using shallow pond features	<b>Jim Heslop</b>	<b>EA, NE, DWT, DBP, LAs</b>		
2. Draw up a priority list of sites for resurvey/new survey	<b>Jim Cokill</b>	<b>DWT, DBP</b>		<b>2009</b>
3. Carry out a resurvey based on	<b>Jim Cokill</b>	<b>DWT, DBP</b>	<b>resurvey</b>	<b>2010</b>

4. Actively pursue the collation of data held by consultancies.	<b>Durham Biodiversity Partnership</b>	<b>DBP, DWT</b>	<b>data collated</b>	<b>2009</b>
5. Implement strategic pond creation to create a network of appropriate habitats for great crested newts. (see Lakes, Reservoirs and Ponds Action Plan)	<b>Jim Heslop</b>	<b>EA, DBP, DWT, LAs, NE</b>		
6. Through Section 30 licences ensure compliance with Environment Agency policy to prevent impact on great crested newt populations from fish stocking.	<b>Jim Heslop</b>	<b>EA, LAs, DWT, NE</b>		
7. Raise awareness of great crested newt habitat requirements amongst the public and professionals through education work	<b>Jim Cokill</b>	<b>DWT, DBC, DBP, EA, NE</b>	<b>education project underway</b>	<b>2009</b>
8. Produce detailed habitat maps of Great Crested Newt habitat around occupied ponds in Darlington (as a pilot).	<b>Jim Cokill</b>	<b>DWT, DBC, DBP</b>	<b>Maps on GIS</b>	<b>2009</b>
9. Develop tools for planners to allow appropriate action to be taken within development control to conserve, and where possible expand, great crested newt	<b>Durham Biodiversity Partnership</b>	<b>DWT, LAs, NE, DBP</b>		



# Green Hairstreak Action Plan

LO11

Lead Partner: *Dave Wainwright – Butterfly*

Conservation. [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

Priority habitats or species:

Green Hairstreak

*Callophrys rubi*

## Introduction

The Green Hairstreak is a widespread but local species in the UK, which has been lost from many sites in the Durham BAP area in recent years.

The butterfly utilises a wide range of habitats and foodplants but is strongly associated with scrub and shrubs. In Durham most colonies are found on heathland where bilberry (*Vaccinium myrtillus*) is the main foodplant.

Green Hairstreak adults from a single brood are on the wing from mid-May to the end of June. Overwintering as larvae leads to this early emergence.

There is thought to be an association with ants, who bury the pupae, although the range of species is unknown.

## Local status

This is an inconspicuous species which may be overlooked, however large colonies are known from a number of sites including Waldrige Fell, Hedleyhope Fell and Hamsterley Forest . Other colonies are known to have been lost through agricultural land-use changes, but recently several new ones have been discovered on brownfield sites, where gorse (*Ulex europaeus*) or Broom (*Cytisus scoparius*) are probable foodplants.

## Current or recent activity

Butterfly Conservation has undertaken survey work and volunteer training days in recent years, particularly around Hamsterley Forest and Hedleyhope Fell, and has provided management advice to the Forestry Commission and Durham Wildlife Trust.

## Threats

- Destruction of habitat through agricultural and forestry land-use changes.
- Shading out of larval foodplant (bilberry) through large scale scrub encroachment.

- Overgrazing of larval foodplant (bilberry).
- Isolation of remaining colonies from a combination of the above.

## Objectives

1. Protect and enhance existing populations of the Green Hairstreak in the DBAP area
2. Expand the range and size of population of Green Hairstreak
3. Maintain and enhance suitable habitat at known occupied sites and potential sites

## More information / references

**Asher, J., Warren , M., Fox, R., Harding, P., Jeffcoate, G., Jeffcoate, S. (2001).** *The Millennium Atlas of Butterflies in Britain and Ireland* . Oxford University Press.

**Fox, R., Asher, J., Brereton, T., Roy , D. and Warren , M. (2006) .** *The State of Butterflies in Britain and Ireland* . Pisces Publication.

## Green Hairstreak Actions

Action priorities	Action Contact	Action Partners	Goal	Date
1. Co-ordinate mapping of breeding sites	<b>BC Recorder</b>	<b>BC, DBP, DCC, FC, DWT</b>	<b>GIS layer</b>	<b>2008</b>
2. Provide updated information on sites to Natural England farm advisors	<b>Durham Biodiversity Partnership</b>	<b>DBP , BC</b>	<b>GIS layer</b>	<b>annually updated</b>
3. Produce green hairstreak factsheet	<b>Dave Wainwright</b>	<b>BC, DBP</b>	<b>1 factsheet</b>	<b>2008</b>
4. Encourage appropriate management on known breeding sites	<b>Dave Wainwright</b>	<b>BC, NE, DBP, DCC, FC, DWT</b>	<b>habitat condition maintained/restored</b>	<b>ongoing</b>
5. Create new areas of heathland habitat for Green Hairstreak in targeted locations	<b>Stuart Priestley</b>	<b>DCC, BC, DBP, DWT</b>		<b>ongoing</b>

# White-letter Hairstreak Action Plan

WO6

Lead Partner: *Dave Wainwright – Butterfly Conservation*. [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

Priority habitats or species:

White-letter Hairstreak		<i>Strymonidia w-album</i>
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## Introduction

This small and elusive butterfly is intimately associated with elm trees, where it lays its eggs and which, subsequently, provides food for the larvae. Various elm species are used, including Wych Elm (*Ulmus glabra*), English Elm (*U. procera*) and Small-leaved elm (*U. minor*), although Wych Elm may be preferred. The butterfly breeds where elms occur in sheltered hedgerows, mixed scrub, edges of woodland rides and large isolated elms. In the past the species has not been well recorded, as they are hard to see as adults. However the devastation of the elm population by Dutch Elm disease in the 1970s has led to concern for this elusive species, and there has been more recorder effort nationally since the 1980s.

The species is single brooded with adults on the wing from the beginning of July to mid-August (depending on the weather), but is often more likely to be recorded in its egg stage which lasts from August until the following mid April.

Many colonies are likely to have become extinct with losses of large elms, but the butterfly can breed on abundant sucker regrowth near dead trees.

## Local status

The White-letter hairstreak is near the northern limit of its range in Durham, although global warming is pushing this limit northwards.

Records are scattered across lowland areas of Durham, and there are likely to be colonies as yet unrecorded.

## Current or recent activity

Current activity has focussed on recording, particularly training volunteers to look for the egg stage on elm branches. An egg identification training workshop was held in January 2005.

## Threats

- Loss of suitable habitat through decline in hedgerows, removal of elm scrub, loss of elm trees to Dutch Elm Disease.

- Loss of suitable habitat through early hedgerow trimming.

## Objectives

1. Safeguard existing populations and achieve a more widespread distribution of white-letter hairstreak.
2. Increase the area of suitable habitat, that supports populations of white-letter hairstreak.

## More information / references

**Asher, J., Warren, M., Fox, R., Harding, P., Jeffcoate, G., Jeffcoate, S. (2001).** *The Millennium Atlas of Butterflies in Britain and Ireland.* Oxford University Press.

**Davies, M. (1992).** *The White-letter Hairstreak.* Butterfly Conservation

**Fox, R., Asher, J., Brereton, T., Roy, D. and Warren, M. (2006).** *The State of Butterflies in Britain and Ireland.* Pisces Publication.

## White-letter Hairstreak Actions

Action priorities	Action Contact	Action Partners	Goal	Date
1. Co-ordinate mapping of breeding sites	BC Recorder	BC, DBP, DCC, FC, DWT	GIS layer	2008
2. Co-ordinate egg survey – including training events for volunteers	Dave Wainwright	BC, DBP	1 training event	2008
3. Provide updated information on sites to Natural England Farm Advisors	Durham Biodiversity Partnership	DBP, BC	GIS layer	annually updated
4. Identify suitable locations for planting and/or habitat management schemes	Durham Biodiversity Partnership	DBP, BC, DBP, DCC, FC, DWT		2008

# White-clawed Crayfish Action Plan

WE8

Lead Partner: *Jim Cokill – Durham Wildlife Trust.* [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

Priority habitats or species:

White-clawed Crayfish

*Austropotamobius pallipes*

## Introduction

The white-clawed crayfish is the only species of freshwater crayfish native to the UK . This crustacean is found mainly in clean, calcareous streams, rivers and lakes. It is one of the UK 's largest mobile freshwater invertebrates, growing up to 10-12cm in length. The species gets its name from the pale undersides to its claws; the rest of the crayfish is dark greenish brown. Three non-native crayfish species are now breeding in the wild in the UK ; these were introduced into the country and farmed but have escaped into river systems. These are the American signal crayfish (*Pasifastacus leniusculus*) , the noble crayfish (*Astacus astacus*) and the Turkish crayfish (*Astacus leptodactylus*).

## Local status

As across most of the UK , white-clawed crayfish are thought to have declined dramatically over recent decades in the DBAP area, but the scale of the decline is unknown due to a lack of survey data. It is thought that habitat loss and competition from non-native crayfish species are the main reasons for the decline, but again no comprehensive studies have been carried out.

There are no known white-clawed crayfish populations in the River Wear or its tributaries and it is suspected that the species was not native to the Wear or has been absent for centuries. White-clawed crayfish are found in the Tees catchment, but there are only sporadic records. However, there are two known populations located in still waters, one in the Durham area and one in the Tees valley.

## Current or recent activity

- DWT survey of Tees from Cow Green to Barnard Castle , 2003.
- DWT survey of Tees from Barnard Castle to Darlington , 2005.
- Durham Wildlife Services survey of Middleton-St-George Reservoirs, 2005.
- EA North East regional survey, 2005.

## Threats

- Loss of habitat due to inappropriate management of riparian habitats.
- Competition from non-native crayfish species.
- Transmission of crayfish plague via non-native crayfish species or through fish stocking.
- Poisoning by pollutants, for example synthetic pyrethroids.

## Objectives

1. Maintain the present distribution of white-clawed crayfish populations
2. Maintain and create appropriate habitat conditions for white-clawed crayfish.
3. Where feasible, restore white-clawed crayfish populations to watercourses within their former range

## More information / references

*British Red Data Books : 3. Invertebrates other than insects* JNCC

**Lewis G. and Williams G. (1984).** *Rivers and Wildlife Handbook: a guide to practices which further the conservation of wildlife on rivers.* RSPB and RSNC, Peterborough .

**National Rivers Authority.** *A Guide to Identifying Freshwater Crayfish in Britain and Ireland .* (currently being updated by the Environment Agency).

### White-clawed Crayfish Actions

Action priorities	Action Contact	Action Partners	Goal	Date
1. Establish ' Ark ' populations of White Clawed Crayfish above NWL reservoirs using the Middleton St George population.	Jim Cokill	DWT, NWL, EA, DWT, DCC	New populations stable	2010
2. Produce a leaflet and implement a targeted campaign for local angling clubs to raise awareness of the importance of and threats to native white-clawed crayfish.	Jim Heslop	EA, DBP, DWT, RWET, TWET, TRT		2009
3. Survey sites on the River Derwent to gather information on the distribution of American crayfish within this watercourse.	Jim Heslop	EA		2009
4. Carry out regular surveys for white clawed crayfish, focussing particularly in still-waters.	Jim Heslop	EA		

# Juniper Action Plan

W05

Lead Partner: *Durham Biodiversity Partnership*. [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

Priority habitats or species:

Juniper

*Juniperus communis ssp communis*

## Introduction

Juniper *Juniperus communis ssp communis* is a native coniferous shrub of the British Isles. Although its centre of distribution lies within the Highlands of central and eastern Scotland, juniper also occurs at scattered localities in southern and northern England and Wales. It forms a component of a number of British plant communities as it is able to thrive on both acid and calcareous freely drained (but moist) soils at a wide range of altitudes, ranging from sea level to montane environments where it occurs on a prostrate form as *ssp nana*.

In northern Britain juniper is often found within the field layer of open birch and pinewoods and on upland heaths and acid grasslands. Where juniper is the most dominant woody species, it can form a unique woodland vegetation type, W19 *Juniperus communis-Oxalis acetosella* woodland community (National Vegetation Classification, Rodwell 1991). This northern juniper is particularly important in terms of nature conservation, and stands in Durham represent southern examples of this community.

The ground layer of these woods can be species rich, including a typical woodland ground flora with wood anemone *Anemone nemorosa*, wood sorrel *Oxalis acetosella*, and moschatel *Adoxa Moschatellina*. Juniper also supports a comparatively small, yet characteristic, native invertebrate fauna, including many species with specialised habitat requirements and restricted distribution in the UK. Juniper stands in northern England often support a mix of both northern and southern species on the edge of their range such as the Juniper Carpet *Thera juniperata* and Juniper Pug *Eupithecia pusillata*.

Stands of juniper can also diversify upland bird communities, as bushes are an important food source for frugiferous birds such as fieldfares, song thrushes and ring ouzel. In the absence of other native tree cover, juniper stands also provide valuable winter shelter for black grouse. Nationally, juniper is not a scarce plant. In England, however, there is concern that juniper is becoming increasingly scarce as a semi-natural vegetation type. In southern England juniper is in a critical state of decline with evidence of habitat fragmentation and contraction in range through extinctions. The poor regenerative status of British juniper stands is widely considered to be the greatest long term threat to this habitat type. In northern England juniper is also a restricted habitat type but it has been part of the local flora since the Ice Age. Again lack of regeneration has been noted.

## Local status

Although juniper is locally abundant in parts of Cumbria it is more localised in Durham and Northumberland. The majority of juniper in Durham occurs in or adjacent to the North Pennines Natural Area on unimproved pasture or moorland in isolated stands. The total area of this habitat is approximately 115ha, split between 26 colonies. Around 100ha of this is in the Upper Teesdale NNR (counted as one site).

A notable exception to this westerly distribution in Durham is a site on the Durham Coast at Blackhall Rocks.

Surveys in 1973 and 1994 highlighted the local decline in juniper. Twelve sites and 36% of bushes were lost in this period. Juniper stands are dominated by old bushes (over 50 years) and natural regeneration is rare.

### **Current or recent activity**

Comprehensive surveys of juniper colonies in the north east of England were undertaken by English Nature in 1973 and 1994.

Natural England has been a leader in establishing Juniper through its planting work and regeneration trials in Upper Teesdale NNR.

Outside Upper Teesdale NNR planting schemes to extend existing stands and to create new ones, have been undertaken and continue to be undertaken by Natural England, Durham County Council, Northumbrian Water, Durham Wildlife Trust, Game Conservancy Trust and others. Seed from an old stand at Hishopeburn has been collected annually since autumn 2004 and is being propagated by Trees Please Nursery near Corbridge.

### **Threats**

#### **Grazing and management**

- The decline in juniper is partly due to intensive grazing, principally by sheep but also cattle and by increasing populations of rabbits and other small mammals. Young juniper plants are very palatable to animals, unlike the older spiny plants.
- Heavy grazing opens up dense stands of juniper, gradually fragmenting colonies into an open community of scattered individuals.
- It is also thought that traditional management which included the periodic harvesting of juniper scrub for fuel and haystack bases and so on, combined with variable but lighter grazing regimes might have provided ideal conditions for seed germination.

#### **Regeneration and seed viability**

- Age has been found to affect reproductive output as the capacity of bushes to fruit diminishes as bushes grow older. Seed viability also decreases with age, falling from 80% in young plants to 5% in older populations.
- These factors, along with the dioecious nature of juniper (presence of male and female flowers on separate plants), mean that older, even aged stands of juniper which are increasingly fragmented become less and less likely to regenerate.

#### **Burning**

- Rotational burning of heather has affected a number of isolated communities in the past.

#### **Natural succession**

- Juniper which exists in open woodland will eventually be shaded out if the canopy closes. Unless regeneration occurs on the developing open fringes of this woodland, the population will be lost. This has happened on a number of sites in Durham.



## Objectives

1.
  - Maintain and enhance the present range and population size of Juniper.
2. Encourage natural regeneration of Juniper at existing sites.
3. Raise awareness of the species and its conservation requirements.

## More information / references

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**Gilbert O.L. (1980).** *Juniper in Upper Teesdale* Journal of Applied Ecology Vol 68 p1013-1024

**Rodwell J.S.(1991).** *British Plant Communities, Volume 1 Woodland and Scrub.* Cambridge University Press.

**Ward L. (2005).** *Plantlife Dossier – Juniperus communis.* Plantlife UK.

## Juniper Actions

Action priorities	Action Contact	Action Partners	Goal	Date
1. Collate all new planting scheme information in one database	Lucy Campbell	DBP, DWT, NE	GIS layer and associated data held and updated by Durham Wildlife Trust	ongoing
2. Hold annual seed collection events	Chris McCarty	NE, DBP	at least one public event annually	ongoing
3. Undertake planting schemes in appropriate locations	Chris McCarty	NE, DBP, DWT, DCC, NWL		
4. Disseminate best practice on regeneration to landowners and other land managers	Chris McCarty	NE, DBP		

# Freshwater Fish Action Plan

WE4

Lead Partner: *Jim Heslop – Environment Agency.* [leadpartner@durhambiodiversity.org.uk](mailto:leadpartner@durhambiodiversity.org.uk)

## Priority habitats or species:

Salmon	<i>Salmo salar</i>
Wild Brown Trout	<i>Salmo trutta</i>
Eel	<i>Anguilla anguilla</i>

## Introduction

Populations of migratory salmonids in the UK have fluctuated greatly over the past century, primarily due to large-scale industrial pollution. The pollution reached its worst around the mid 1900s when numbers of both sea trout and salmon dwindled in many major river systems.

With the onset of more environmentally friendly work practices, environmental projects and the associated improvements in water quality, fish stocks have recovered greatly over the last fifty years. Some rivers such as the River Wear have even experienced record catches. Durham now supports healthy populations of salmon and sea trout in all major river catchments.

Brown trout stocks are relatively unknown in many areas of the North East and therefore require more detailed investigation to determine their distribution and abundance. It is known that many of the upper catchments in the area provide good quality habitat, particularly for juvenile salmonids.

There is little data on the abundance of eels in the Durham area although it is thought that their numbers are in general decline throughout Europe.

## Current or recent activity

Fish passage within the Durham area has been improved in recent years by the installation of a fish pass on the Wall Nook dam at Langley Park. Through this project the EA increased accessibility to over 15 km of trout/sea trout spawning habitat within the Wear catchment. Habitat improvement work at Langley Park in the area above the dam is also ongoing.

Fishing pressure on migratory salmonids has been greatly reduced through buyout of a large numbers of licences in the North East coastal fisheries.

The numbers and timing of salmon and sea trout returning to many of the North East river systems are actively monitored through fish counters situated on the River Wear, Gaunless and Tees. In addition electric fishing surveys are conducted annually to investigate juvenile salmonid populations within the upper catchments.

Fish numbers are also recorded through angler logbook schemes, whereby anglers are encouraged to keep detailed records of their catches to provide further data on fish distribution and abundance.

In recent years there has been a move toward the protection of wild fish stocks in line with the EA Trout and Grayling Strategy. This encourages the stocking of sterile, all female triploid to reduce the chance of stocked fish spawning with native wild fish.

In-stream egg incubator boxes have also been employed by the EA as a method of increasing numbers of native strain fry in feeder streams with low juvenile trout densities.

## Threats

- The main threat to salmonids come from water quality issues, primarily pollution creating a direct impact on the fish and often reducing dissolved oxygen (DO), particularly in the estuarine environment. This is exacerbated in estuaries that have been dredged for shipping access. Dredging creates deeper water and reduced mixing of the fresh and saline water resulting in large volumes of poorly oxygenated water.
- Poor farming practice, leading to bank erosion is also a threat causing problems with siltation of spawning gravels. Another big threat comes from over exploitation of fish stocks both by anglers and illegal fishing.
- Possible threats to brown trout include over stocking, which can lead to farm strain fish breeding with wild fish and a loss of genetic diversity, and to increased competition.
- Over exploitation by anglers, and habitat degradation through poor land management practice are also potential threats.
- The main perceived threats to eel stocks come from barriers to migration, and *Anguillicola crassus*, a parasite that damages the eels swim bladder.

## Objectives

1. Increase awareness and education opportunities regarding freshwater fish resources and the aquatic ecosystem.

### Salmon

2. Ensure that stocks of salmon are maintained in the Wear and Tees catchments.

### Trout

3. To have a better understanding of the distribution of wild trout stocks and ensure appropriate management of natal streams, as well as adult habitat.
4. To establish baseline surveys of trout stocks for monitoring population dynamics.
5. To protect distinct populations of wild trout from the threats of stocking and loss of genetic integrity.

### Eel

6. To increase eel passage through all catchments.

## More information / references

Freshwater Fish Actions				
Action priorities	Action Contact	Action Partners	Goal	Date
1. Provide additional 10km of salmonid habitat through fish passage improvements on Swinhope Burn.	Jim Heslop	EA	10km created	2011
2. Promote and implement habitat improvements for salmon, trout and eel in the Durham BAP area.	Jim Heslop	EA		
3. Conduct baseline survey for eels	Jim Heslop	EA	Survey report	
4. Implement the area Eel Management Plan	Jim Heslop	EA		