

West Lothian Local Biodiversity Action Plan
Planning for Biodiversity Action
2005 - 2009



objective



Common spotted orchid

To enhance and increase the mosaic of habitats and the key species of which they are composed to address their importance in the environmental, social and economic values of West Lothian



Front cover

Photograph of Common spotted orchids and a single Butterfly orchid growing on a roadside verge in Polbeth, West Lothian.

In 2004 the Common spotted orchid was named as the emblem flower for West Lothian as a result of the Plantlife International public vote for a wild flower for each county in the UK

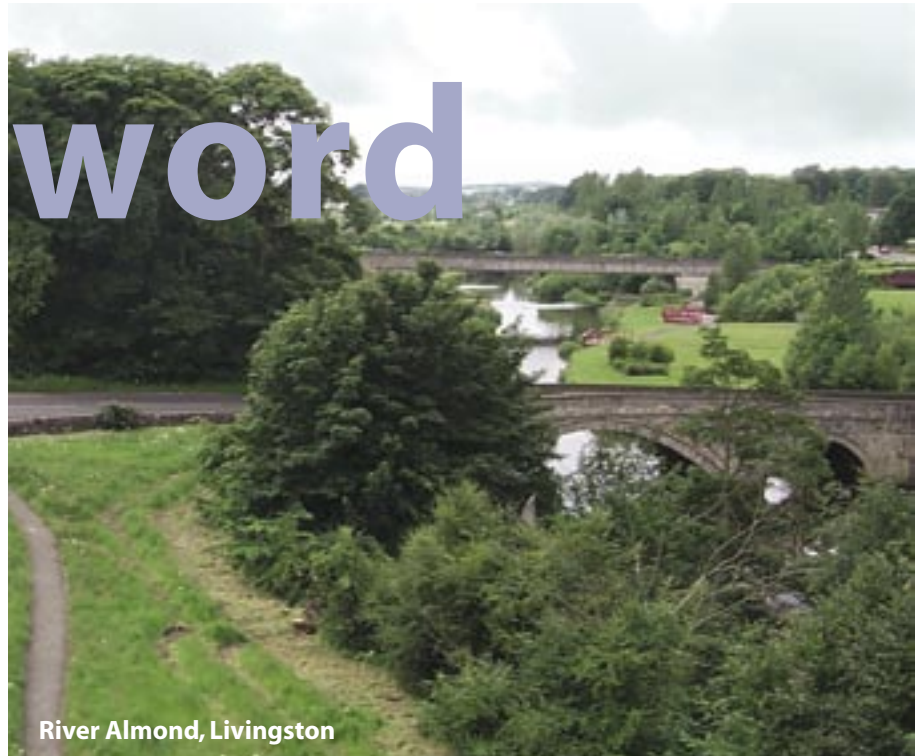
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foreword

*by Councillor Joe Thomas
Provost,
West Lothian Council*



River Almond, Livingston

The achievements of the West Lothian Local Biodiversity Action Plan 1998-2003 have illustrated the environmental, social and economic benefits of the associated action programmes. The key to this has been the working partnership of the stakeholders. This has developed steadily over the plan period and the resulting achievements have been recognised nationally by awards and commendations, but it has been the difference made at the local level that is most important.

The achievements are listed in the revised plan but new targets and objectives are now set for the next plan period 2005 - 2009.

Since the signing of the Convention on Biological Diversity in 1992 there has been a significant learning curve in relation to the threats to biodiversity, its importance in terms of sustainable development, and its role in our lives. This process will continue and while the first Action Plan was a pioneering effort of all those involved, the revised plan will provide a greater focus and purpose. However, there is no doubt that much will change during the next plan period and therefore, it must be regarded as a framework for partner working rather than a rigid mechanism.

introduction



The first West Lothian Local Biodiversity Action Plan (LBAP) was adopted, after public consultation, in June 1998. Its focus was on a number of strategic habitats and land uses with the objective of developing individual five-year action programmes, these being delivered through the partnership of stakeholders. In the development of the four action plans currently being implemented the aim has been to ensure that biodiversity conservation is not regarded in isolation but considered as a key indicator of sustainable development. As a consequence, the plans are linked and each reflects policies and strategies of the individual partners in relation to integrated delivery and the maximisation of results through joint investment and working.

The preferred approach has been to deliver biodiversity enhancement through the management and improvement of habitat rather than to develop species action plans. This is a distinctive approach adopted in West Lothian. However, the identity of priority species has proved invaluable for development planning, grant aid and public awareness purposes. It continues as an influential focus and indicator for the biodiversity programme.

During the period of the Action Plan the importance of geology and soils emerged as a missing feature of biodiversity and sustainability. This is now addressed. By contrast, other habitats in the original plan have featured less as a consequence of changing priorities for action. However, pilot projects to raise awareness, as in the business sector, have been initiated as additional actions.

The revised plan for the period 2005-2009 maintains the direction of the strategic approach to delivering biodiversity enhancement in West Lothian, with the focus on projects and co-ordinated initiatives that, wherever possible, are cross cutting. Flexibility in the approach is essential, to enable new initiatives to be developed,

particularly where the need to deliver national strategies, policies and priorities becomes apparent. In this context the influence and development of the Scottish Biodiversity Strategy 2004 may make it necessary to reassess components of the action plan during its lifespan. However, the plan is fundamentally to address local priorities and this must always influence the allocation of resources and effort.

There is, however, a need to ensure that where habitat priorities extend across the artificialness of local authority boundaries the bio-geographic focus for certain action plans is recognised. For the Rivers and Streams Action Plan the co-operation between North Lanarkshire, West Lothian and the City of Edinburgh Councils, in delivering improvements for the River Almond, has been critical. Other such joint working needs to be addressed.

biodiversity



Small copper

BIODIVERSITY – THE INTERNATIONAL, NATIONAL AND LOCAL COMMITMENT

The staging of the United Nations Earth Summit in 1992 and the signing of the Convention on Biological Diversity by over 150 countries, including the United Kingdom, was the determining moment in the need to take action to halt the worldwide loss of animal and plant species and genetic resources. As a consequence, each country was tasked to take responsibility for saving and enhancing its biodiversity and to draw up national plans and programmes to begin the process.

The UK government took a significant lead by publishing its action plan in 1994. Included in this was the setting up of a UK Biodiversity Steering Group, on which West Lothian Council represented the Convention of Scottish Local Authorities, to report on the way forward. In 1995 it published its recommendations and in 1996 the government endorsed its report. In response to this the then Scottish Office set up the Scottish Biodiversity Group whose work has been continued by the Scottish Executive in the form of the Scottish Biodiversity Forum. It, in turn, was tasked by Ministers to prepare a biodiversity strategy. Launched in May 2004 this will provide the focus for action programmes in future years by concentrating on priority species and habitats, as well as the general delivery of biodiversity as an essential indicator of sustainable development.

With such ambitious programmes and targets success depends upon delivery at the local level. However, it is not just the rare and threatened species and habitats that contribute to the quality of our lives. At the local level it is equally the common, the characteristic and the distinctive animals and plants that make up our environment. We need to be aware of their needs and what we can all do to help safeguard them for future generations to enjoy. The need to enhance and increase the mosaic of

West Lothian habitats and the key species of which they are composed remains the objective.

This is the purpose of the West Lothian Local Biodiversity Action Plan (LBAP). In 1997 it was the first such plan to be prepared in Scotland, with the commitment of key partners to address the needs. Some of the targets set in the plan adopted in 1998 were over ambitious and unachievable. As experience has developed through knowledge and practice the development of local action programmes is becoming more focused as priorities evolve. External influences also come into play, particularly new legislation such as the Water Environment and Water Services (Scotland) Act 2003 and the Nature Conservation (Scotland) Act 2004. Against this background the revision of the LBAP sets the framework for the partner commitment to deliver the second biodiversity action programme for West Lothian.



Bracket fungus

perspective



THE WEST LOTHIAN PERSPECTIVE

Biodiversity is about nature conservation but not just for its own sake. It is about how it contributes to the social and economic values of West Lothian. It is the quality and distinctiveness of its landscape, the setting for industry, tourism, the education of our children and of ourselves, the enjoyment of our surroundings and our heritage. It is part of the West Lothian culture; it provides relaxation and significantly contributes to the quality of our lives. However, it must be regarded against a background of rapid urban growth and development. This makes it increasingly important to sustain and enhance the biodiversity of the council area.

Biodiversity provides us with the essentials of life - food, clothing, health and shelter. Yet no plant or animal survives in isolation - each contributes to the balance of nature and humans are part of this complex system. Thus, a high quality natural environment not only supports habitats for wildlife, but contributes to our well-being and quality of life.

For this plan an audit of animal and plants in West Lothian has shown that there are over 5000 species present, ranging from the very rare to the common. Many species are still unrecorded, and if insects, fungi and algae are all included, as they need to be when considering the whole natural variety of West Lothian that is at risk, then many more species are still to be discovered. Our knowledge and information base, although greater than in many other parts of Scotland, is still lacking and the need to work closely with the Lothian's Wildlife Information Centre to redress this is increasingly important.

The need for a biodiversity action plan for West Lothian was originally determined by the national commitment. However, what it can deliver at the local level has

given the plan that all important dimension while it is still an important part of the national network of delivery mechanisms. The local achievements and the contribution to sustainable development in West Lothian has proved the value of the plan as a lead strategy within the community planning process. As a consequence, the council is committed to taking a lead role to catalyse and develop the LBAP at the local level, as a member of the LBAP partnership.

influence



THE INFLUENCE OF GEOLOGY, LAND FORM AND SOILS ON WEST LOTHIAN'S BIODIVERSITY

Lead Partner: Lothian and Borders Regionally Important Geological Sites (RIGS) Group and British Geological Survey

AUDIT

a. Geology

The geology of West Lothian comprises rocks from the late Devonian and Carboniferous periods. Formed between 370 and 280 million years ago, the rock types chart the transition from terrestrial, desert conditions, with rivers and flash floods, to marine, lagoonal, forest, delta and river environments, during a time when Scotland drifted into equatorial regions.

Erosion of mountains uplifted by an earlier collision of continents carrying an earlier 'Scotland' and 'England' gave rise to Devonian desert sedimentary rocks, red sandstones and conglomerates (boulder beds). These form the Pentland hills of East Cairn, West Cairn, Colzium and Craigengar as well as underlying Bawdy Moss.

The bulk of West Lothian is underlain by Carboniferous age sedimentary rocks, molten rock intrusions, lavas and volcanic ash. During the Carboniferous period, a constant battle raged between land and sea. The effect was to generate repeated sequences of rock comprising sandstone, siltstone and mudstone with thick or thin seams of limestone, coal and oil shale. The various rock types reflect different environments under which they were created.

The Carboniferous rocks occupy broad bands running roughly north-south which gently dip to the west. To the east and south of West Calder and Livingston and

forming the Pentland foothills are the oldest Carboniferous strata, mostly devoid of usable minerals apart from local limestones as around Murieston. The east central area, from the coast through Broxburn, Livingston and West Calder to Cobbinshaw is underlain by strata containing the numerous oil-shales which gave rise to the former West Lothian oil-shale industry. Now all that remains are the large red, mostly flat-topped shale bings. The spine of the area is the Bathgate Hills, made up of hard basalt lavas and ashes, produced during an episode of volcanic eruptions. These were restricted to the north, while tropical seas and coal-forests in the south gave rise to limestone and coal-bearing strata. The west central strip of rocks is a source of silica sand, or fireclay, while the west of the area around Armadale, west Whitburn and Fauldhouse is part of the great Central Coalfield of Scotland.

At many places the Carboniferous sedimentary rocks are cut by intrusions, solidified masses of molten rock of various shapes and sizes. These form many of the dolerite hills throughout the area that stick above the low-lying plains, such as Dechmont Hill, Cockleroy and Binny Craig. Ancient volcanic vents form other hills such as Tar Hill near Ecclesmachan and the Binns.

West Lothian, like all of Scotland, was covered by ice-sheets on a number of occasions during the last 2 million years. Each ice-sheet flowed from west to east across the area, eroding the bedrock into streamlined west-to-east land forms such as the crag-and-tail of Dechmont Law and Binny Craig. The ice-sheets left an extensive cover of glacial debris or till, blanketing most of the low-lying ground. This is commonly known as boulder clay, the clay being derived mainly from ground-down Carboniferous mudstones, and the boulders and pebbles being the rounded remnants of harder rock such as sandstone, limestone, lavas and intrusions. As the last ice-sheet melted, glacial meltwater cut channels and laid down hummocky sand and over deposits, as in the strip running through Linlithgow. Peat formed during rainy periods in waterlogged hollows to give mosses such as Blawhorn and Tailend; on high ground blanket peat formed. Lakes formed in hollows left after glaciation and filled with lake clays and silts leaving alluvial flats. Flood-plains along rivers and streams consist of alluvial gravel, sand, silt and clays. Along the coast raised beaches of gravel, sand, silt or clay formed as the sea stood at levels higher than today's.

b. Landforms

The hills of West Lothian are formed of the harder rocks and these protrude through the cover of glacial deposits. The Pentland Hills consist of hard Devonian sandstones, the Bathgate Hills of basalt lavas, and the many other hills of intrusive dolerite or vent agglomerate. The low ground has a dominant west-to-east grain reflecting the direction of flow of the ice-sheet, as it moulded the boulder clay into ridges and drumlins. Hummocky hills are formed by sand and gravel deposits, and the various flat areas are underlain by basin peat, raised beach, lake or river alluvial deposits.

In general terms, the geology and landform of the area together provide the basic building blocks for habitat conditions and habitat diversity through their influences on topography, soils, drainage and micro-climate. The uplands, moors, river valleys, coastal plain and hills have each had a distinctive influence on the natural post-glacial vegetation cover which was then much influenced by man. The relationship between geology and landform on biodiversity still requires much analysis.

c. Soils

The soils of West Lothian are mainly formed on the glacial deposits, which provide a wide variety of parent materials and hence influence their inherent characteristics. Some soils formed on sand and shale have a tendency, given climatic conditions, to acidify with a consequently effect on the overlying vegetation. The Soil Survey of Scotland classifies the soil of this area as brown forest soils or acid brown forest soils, with or without the effects of water logging. Within these classes there is considerable variability.

Given this variability, it is difficult to generalise about soil properties in West Lothian. There is variety in chemical status, moisture, pH, texture and organic matter content. It is thus more appropriate to summarise soil properties based on habitats as vegetation reflects and affects soil conditions. This also determines the richness of the biodiversity of a soil. It is, after all, not simply a growing medium but a complex of biological diversity, which is irreplaceable. The conservation of West Lothian soils is as vital an objective as the conservation of the plants and animals that live in the habitats that they support. A Soil Sustainability Plan for West Lothian was published in 2004.

Soils as a constituent of sustainable development

Public awareness of West Lothian's soils and their influence on biodiversity is the least understood natural resource in the context of sustainable development. In policy and decision-making more attention needs to be given to soils. As a consequence, the LBAP now includes the commitment to prepare a soil action plan (page 53) and appropriate policies and guidance will be provided through the West Lothian Local Plan and development control guidance.

Awareness of Geodiversity

Five sites of geological importance have been designated as RIGS (Regionally Important Geological Sites) by the Lothian and Borders RIGS Group. These are Almondell and Calderwood (1999), Petershill (2000), Binny Craig (2002), and East Kirkton Quarry (2003). Interpretation leaflets, that describe their interest, have been produced where site access is possible. The geological wall viewpoint at Witchcraig, opened in 2003, is a unique contribution to the needs of raising awareness of West Lothian's geological heritage. This objective will continue as more RIGS are identified and innovative ways of raising the profile of geodiversity will be developed. The need for a geodiversity plan to accompany the Local Biodiversity Action Plan and to guide planning policy and awareness raising, is a target for the council in partnership with the British Geological Survey and Lothian & Borders RIGS Group.

TARGETS

- Preparation of a geodiversity plan
- Launch of a Bathgate Hills geological trail centred on the Almond Valley Heritage Centre
- Identification of a suite of RIGS to cover the variety of geology and active processes
- Publication of interpretative material for each RIGS

habitats



THE AUDIT OF WEST LOTHIAN HABITATS

Background

The government's commitment to a biodiversity action programme is based on lists of species and habitats that are at risk at an International and National level. Active management is needed for all of these and this begins at the local level as part of national programmes.

In its action plan the government also lists the national habitats at risk. This extends to 38 different types. Those habitats selected as representative of West Lothian are generally broad groupings. Where these include habitats of national importance these are highlighted in the descriptions (section 8).

Phase I Habitat Survey

In 1994 a survey of all habitats was commissioned by the former West Lothian District Council and Scottish Natural Heritage for the whole county. For planning, policy and environment initiatives this is invaluable information (table 1). It creates a picture of the habitat variety of West Lothian at that time but it is also the baseline on which the success of biodiversity enhancement will be monitored and assessed.

TABLE 1 HABITAT AREA (source : West Lothian phase 1 habitat survey 1994)

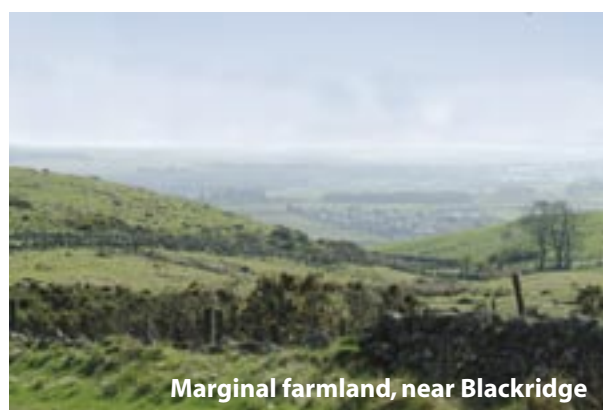
	Area	% Cover
West Lothian ¹	42504 ha	100%
Habitat Types		
Woodland and Scrub	6741 ha	14.0%
Grassland and Marsh	17757 ha	36.0%
Tall Herb and Fen	299 ha	0.6%
Heathland	1399 ha	3.0%
Mires and peatlands	2201 ha	4.0%
Swamp	70 ha	0.1%
Open Water	500 ha	1.0%
Coastland	273 ha	0.5%
Rock and spoil	316 ha	0.6%
Miscellaneous (cultivated land etc)	13296 ha	27.0%

The remaining balance (c. 13.2%) consists of urban unsurveyed areas.

¹. *Footnote:* West Lothian represents approximately 0.5% of the land area of Scotland.

Scotland's estuaries, peatlands, uplands, ancient woodlands, wetlands, old grasslands and heather moorland are habitats of international significance and are irreplaceable. West Lothian has fine examples of all of these habitats within just 0.5% of the land cover of Scotland. More significantly these are close to the main centres of population of Scotland, with all the accompanying pressures on it, and are linked by a network of other habitats and features to form a wildlife resource of extraordinary variety, from the Firth of Forth through to the Pentlands. There are also habitats unique in Scotland which are found on the oil shale bings.

What is quite exceptional is the diverse range of peatlands that remain here. It is estimated that there are over 40 peatland sites of natural heritage value, but it is not just the extent, quality and distribution of these that makes them important but also their diversity. Five have been notified as Sites of Special Scientific Interest. Amongst these, Blawhorn Moss is a National Nature Reserve. That apart, bogs and peatlands are one of the world's rarest and most rapidly diminishing habitats. As a result international and national protection exists for the most important sites in West Lothian to reflect the European context of these peatlands and the responsibility that this carries for managing this irreplaceable part of our natural heritage.



The principal changes since 1994

The range of landscape and natural features in West Lothian is extremely diverse, being influenced by its geology, land form and man. However, since the date of the Phase I survey many changes will have occurred, not least as a consequence of the steady urbanisation and development of the countryside. This trend will continue as housing increases to meet the projected Structure Plan targets and the demand for industrial development land continues.

Changes, as a consequence of agricultural land uses, have been less marked than in previous decades as the focus on countryside management became greater in the European Union Common Agricultural Policy with its gradual departure from supporting food production. In contrast to this, but not unrelated, significant new areas of forestry have been planted, particularly on the moorlands on the western edge of West Lothian. While these are predominantly of conifers their design and species composition has increasingly taken into account the needs of biodiversity and will undoubtedly be an important habitat in the future, having replaced species poor upland grasslands. The pace of this change to woodland has, however, been much reduced in recent years as a consequence of the changes to the support systems for agriculture.

Elsewhere, the restoration of derelict land has occurred and brownfield sites have generally yielded to development. The Union Canal is no longer a fragmented and disused waterway and the lowlandcrofting planning policy has introduced new communities and landscapes in tracts of formerly degraded and marginal farmland.

The pace of change has been exceptional and whereas West Lothian was once an industrialised county the opportunities for environmental repair, management and enhancement have been grasped. In this context the Local Biodiversity Action Plan provides a focus and a tool for ensuring that environmental management and enhancement takes place in relation to the priority species and habitats that it identifies.



Landscape changes - Seafeld Law and The Pyramids

key species



KEY WEST LOTHIAN SPECIES

Background

It is crucial to know which of the 5000 + species living in West Lothian are in greatest need of protection in order to inform decisions such as on development control, land use planning and site designation and management. To decide which are the key species it is first necessary to have knowledge of the full range occurring in the area. Species recording in the UK is still unsystematic and dependant upon volunteer amateur recorders together with specific surveys conducted by environmental organisations and consultancies. West Lothian is fortunate in that the Lothian Wildlife Information Centre has been gathering and collating this diverse range of records of plants and animals over many years. It has, therefore, been unnecessary to carry out a special audit of the wildlife for the purposes of this report. However, in the updating of the Action Plan the opportunity has been taken to review the original published '100' list of species to give it credibility in relation to the range of future actions that will be delivered to conserve and enhance the biodiversity of the area.

Selection of Key Species

There are a number of ways for deciding which species are in most need of protection. It could be based on local threat and rarity but of greater significance are species that are rare or under threat in Britain as a whole. The criterion used for selection of the West Lothian Key Species is that they are nationally significant for various reasons. These reasons are:

- **Nationally Notable** – the species is known to be threatened or is rare in Britain as a whole (Red Data Book, Nationally Scarce etc.).

- **Legally Protected** – the species has been given special protection through the 1981 Wildlife and Countryside Act and other acts.
- **UK Biodiversity Action Plan (UKBAP) Priority Species** – the species has been identified in the UK Biodiversity Action Plan as being sufficiently threatened to require an individual UK-wide species action plan.

The criteria used for inclusion on these lists varies widely so, for example, the Song Thrush is categorised a United Kingdom Biodiversity Action Plan (UKBAP) Priority Species because of a rapid reduction in its population size. Nevertheless it is still relatively widespread and would not be classified as a Nationally Notable species. In general the UKBAP Priority Species that occur in West Lothian are widely distributed. Because of this they do not have the same significance compared to the Nationally Notable and Protected Species. Consequently, in order to have a list of key species that has the greatest practical value it has been decided to identify the UKBAP Priority Species separately from the Notable/Protected species. However, in practice one species, the Black Grouse, although not protected by special legislation or is a nationally notable, it is under such high local threat that it has been included on the Notable/Protected species list.

TABLE 2 KEY WEST LOTHIAN SPECIES					
Species	Common Name	GB Status	UKBAP	Habitats	Requirements
<i>Hygrocybe calyptraeformis</i>	The Ballet Dancer	VU		Grassland	Old grasslands
<i>Lecanora epanora</i>	a lichen	Ns		Rock-faces	Metal-rich, especially sheltered sandstones, upland.
<i>Micarea lithinella</i>	a lichen	Ns		Oil shale bings	On clinker.
<i>Steinia geophana</i>	a lichen	Ns		Oil shale bings	Disturbed light soils.
<i>Stereocaulon nanodes</i>	a lichen	Ns		Oil shale bings	On metal-rich siliceous rocks, including old mine workings, brick and lead-contaminated roadside walls.
<i>Stereocaulon saxatile</i>	a lichen	Ns		Oil shale bings	Gravelly soils.
<i>Stereocaulon leucophaeopsis</i>	a lichen	Ns		Oil shale bings	Metal-rich siliceous rocks.
<i>Bacidia viridescens</i>	a lichen	Ns		Oil shale bings	Crumbling rockface in shale bing
<i>Alectoria chalybeiformis</i>	a lichen	Ns		Rock-faces	On boulders (drystone wall) - Pentlands by A70
<i>Caloplaca cerinella</i>	a lichen	Ns		Oil shale bings	On nutrient rich bark, especially Elder.
<i>Cephalozia catenulata</i>	a liverwort	Ns		Wetlands	Damp peat by ditch, upland.
<i>Anthoceros agrestis</i>	a hornwort	Ns		Farmlands	Damp margin of stubble field.
<i>Buxbaumia aphylla</i>	a moss	Ns		Oil shale bings	Mine and shale waste.
<i>Physcomitrium sphaericum</i>	a moss	Nt	SoCC	Wetlands	Mud by dried-out reservoir.
<i>Philonotis caespitosa</i>	a moss	Ns		Farmlands, Wetlands	Pasture, bare mud by reservoir.
<i>Drepanocladus polygamus</i>	a moss	Ns		Wetlands	Base-rich ground in mires.
<i>Plagiothecium cavifolium</i>	a moss	Ns		Wetlands	Shaded sandstone by burn.

Species	Common Name	GB Status	UKBAP	Habitats	Requirements
<i>Centaurea cyanus</i>	Cornflower	EN, S8	SoCC	Farmlands	Cereal and other arable fields.
<i>Dianthus deltooides</i>	Maiden Pink	Ns		Grassland	Sandy grassland or heath and amongst detritus on rocky outcrops. Favours sunny slopes on soils with some base content.
<i>Fumaria densiflora</i>	Dense-flowered Fumitory	Ns		Farmlands	Lowland calcareous arable land, in eastern Scotland mostly in coastal fields.
<i>Fumaria purpurea</i>	Purple Ramping Fumitory	Ns	PS	Farmlands	Amongst bushes, on hedge banks, in cultivated fields and waste ground.
<i>Lysimachia thysiflora</i>	Tufted Loosestrife	NS		Wetlands	Fens and swamps on flood plains, lake margins, overgrown pools and wet meadows. Locally along canals.
<i>Pyrola media</i>	Intermediate Wintergreen	Ns		Woodland	Woodland
<i>Saxifraga hirculus</i>	Marsh Saxifrage	VU, S8	PS	Moorland	Base-rich flushes and bogs.
<i>Sedum villosum</i>	Hairy Stonecrop	Ns		Wetlands	Stony, bryophyte-dominated, slightly base-rich flushes, often on level ground beside streams among species-poor hill grassland or heather moor.
<i>Vaccinium microcarpum</i>	Small Cranberry	Ns		Bogs	Sphagnum mires.
<i>Zostera marina</i>	Eelgrass	Ns	SoCC	Coastline	Coastal, below low water mark.
<i>Zostera noltii</i>	Dwarf Eelgrass	Ns		Coastline	Intertidal mud.
<i>Atemelia torquatella</i>	a small ermine moth	Nb		Woodland	On Betula.
<i>Coenonympha tullia polydama</i>	Large Heath	Nb, S5	SoCC	Bogs	Lowland raised bogs, peat mosses, upland blanket bog and damp acid moorland. Larva are diurnal feeders on large, mature clumps of Cotton-grass.
<i>Lampronia fuscata</i>	a longhorn moth	pRDB3		Wetlands, Woodland	Larva feeds in a gall in a twig on Betula.
<i>Phyllonorycter strigulatella</i>	a micro-moth	Nb		Woodland	Larvae mine the leaves of Alnus incana, often several to one leaf.
<i>Xylena exsoleta</i>	Sword-grass	Nb	PS	Woodland, Moorland	Moorland and open woodland, the larva on a variety of low growing plants.
<i>Acilius canaliculatus</i>	a water beetle	pRDB3		Wetlands	Peaty water in fens and bogs. Usually found in small pools.
<i>Acrotrichis lucidula</i>	a featherwing beetle	pRDBK		Wetlands, Woodland	Wet moss by spring water see pages and trickles in woodland
<i>Agabus biguttatus</i>	a water beetle	Nb		Wetlands	Usually found in springs.
<i>Agabus unguicularis</i>	a water beetle	Nb		Wetlands	Usually found in peaty water amongst moss or dense vegetation.
<i>Apteropeda globosa</i>	a leaf beetle	Nb		Grassland, Woodland, Wetlands	Little apparent habitat specificity, recorded from grassland, woodland and wetland.

Species	Common Name	GB Status	UKBAP	Habitats	Requirements
<i>Curculio villosus</i>	a weevil	Nb		Woodland	Associated with oak in broad-leaved woodland.
<i>Enochrus ochropterus</i>	a scavenger water beetle	Nb		Wetlands	Standing water.
<i>Hydroporus ferrugineus</i>	a water beetle	Nb		Wetlands	Subterranean waters such as spring systems and culverts.
<i>Hydroporus longicornis</i>	a water beetle	Nb		Wetlands	Relict spring fed bogs and fens. Favours areas receiving run-off from raised bogs.
<i>Hydroporus obsoletus</i>	a water beetle	Nb		Wetlands	Mainly subterranean, often occurring in soft water springs.
<i>Ilybius aenescens</i>	a water beetle	Nb		Wetlands, Moorland	Peat seepages on moorlands and other acid water situations.
<i>Judolia sexmaculata</i>	a longhorn beetle	Na		Woodland	Coniferous woodland mainly with Scots pine, though also recorded from spruce. Larvae develop in decaying roots.
<i>Luperus flavipes</i>	a leaf beetle	Nb		Woodland, Moorland	Broad-leaved woodland, parkland, scrub, heathland.
<i>Nebrioporus depressus</i>	a water beetle	Nb		Wetlands	Open water.
<i>Rhantus frontalis</i>	a water beetle	Nb		Wetlands	Usually in water over sand or peat.
<i>Riolus subviolaceus</i>	a riffle beetle	Nb		Wetlands	Stones and vegetation in swift streams and rivers, usually in calcareous water.
<i>Stenus niveus</i>	a rove beetle	Nb		Wetlands	Edges of lakes and bogs with reed, rush and sedges.
<i>Stictonectes lepidus</i>	a water beetle	Nb		Wetlands	Base-poor streams and ponds.
<i>Tropiphorus terricola</i>	a weevil	Nb		Woodland	Most often associated with dogs mercury in woodland.
<i>Aphrodes albiger</i>	a leafhopper	Nb		Wetlands	Marshy places.
<i>Dicranotropis divergens</i>	a planthopper	Nb		Grassland	Wet upland grassland.
<i>Stiroma bicarinata</i>	a planthopper	Nb		Grassland, Woodland	Vegetation in woodland.
<i>Helius pallirostris</i>	a crane fly	Nb		Wetlands	Associated with aquatic emergent vegetation especially reedmace.
<i>Limnophila pulchella</i>	a crane fly	Nb		Woodland, Wetlands, Moorland	Usually boggy ground in woodland, on wet heath and moorland, with patches of Sphagnum or exposed peat.
<i>Limnophila verralli</i>	a crane fly	Nb		Wetlands	Small streams usually under the shade of alders.
<i>Limonia trivittata</i>	a crane fly	Nb		Woodland, Wetlands	Wet woodlands on base-rich soils, especially beside rivers. Biology unknown but there seems to be a partial association with butterbur.
<i>Molophilus corniger</i>	a crane fly	Nb		Woodland	Woodland with seepages. Larvae possibly develop in damp soil or leaf litter.

Species	Common Name	GB Status	UKBAP	Habitats	Requirements
<i>Neoscia geniculata</i>	a hoverfly	Nb		Wetlands	Ditches, ponds and lakes with lush vegetation, especially Glyceria. Larvae probably detritus feeders in waterlogged soil.
<i>Rhamphomyia obscura</i>	a dance fly	Nb		Bogs	Bogs and damp areas on moorland, usually in uplands.
<i>Tipula gimmerthali</i>	a crane fly	pRDB3		Wetlands	Base-rich streamsides and flushes above 300m.
<i>Tipula pseudovariipennis</i>	a crane fly	Nb		Woodland	Broadleaved woodland.
<i>Dicrostema gracilicornis</i>	a sawfly	pRDB3		Woodland	Larvae feed on moschatel.
<i>Phyllocolpa excavata</i>	a sawfly	pRDB3		Wetlands	Larvae associated with bay willow.
<i>Lymnaea glabra</i>	a snail	VU		Wetlands	Calcium-poor freshwater pools, frequently ones which fill only seasonally.
<i>Falco columbarius</i>	Merlin	S1	SoCC	Moorland	Undisturbed heather moorland.
<i>Tyto alba</i>	Barn Owl	S1	SoCC	Farmland	Open agricultural ground which has foraging area of long grass where small mammal prey is available.
<i>Alcedo atthis</i>	Kingfisher	S1	SoCC	Wetlands	Slow-moving rivers with vertical sandy banks for nest sites and a ready supply of small fish.
<i>Loxia curvirostra</i>	Common Crossbill	S1	SoCC	Woodland	Coniferous woodland.
<i>Circus cyaneus</i>	Hen Harrier	S1	SoCC	Moorland, Farmland	Open, gently sloping or undulating country especially moorland or rough grassy or rushy vegetation.
<i>Falco peregrinus</i>	Peregrine	S1	SoCC	Moorland	Open country for hunting, rock-faces for breeding.
<i>Tetrao tetrix</i>	Black Grouse		PS	Woodland, Moorland	Moorland and forest edge habitats which supports both a diverse range of food plants such as blaeberry and heather and also trees such as birch and rowan.
<i>Triturus cristatus</i>	Great Crested Newt	S5	PS	Wetlands	Breed in still, clear water with little emergent vegetation.
<i>Vipera berus</i>	Adder	S5	SoCC	Moorland	Open habitats.
<i>Myotis nattereri</i>	Natterer's Bat	S5	SoCC	Farmland, Woodland	Associated with woodland edges and breeding in hollow trees, barns and churches.
<i>Myotis daubentoni</i>	Daubenton's Bat	S5	SoCC	Farmland, Wetlands, Woodland	Prefers open, wooded countryside where it roosts mainly in hollow trees and buildings.
<i>Pipistrellus pipistrellus</i>	Pipistrelle Bat	S5	PS	Farmland, Woodland	Roosts mainly in buildings, but tree-holes and bat boxes used as well.

Species	Common Name	GB Status	UKBAP	Habitats	Requirements
<i>Plecotus auritus</i>	Brown Long-Eared Bat	S5	SoCC	Farmland, Woodland	Prefers sheltered, lightly wooded areas and roosts in trees and buildings.
<i>Sciurus vulgaris</i>	Red Squirrel	S5	PS	Woodland	Mainly large blocks (>50ha) of mature coniferous forest, particularly Scots Pine.
<i>Arvicola terrestris</i>	Water Vole	S5	PS	Wetlands	Slow flowing streams or shallow rivers with earth banks. Adjacent reed swamp or marsh vegetation. Upland peat bogs.
<i>Lutra lutra</i>	Otter	S5	PS	Wetlands	Lakes, rivers and marshes.
<i>Meles meles</i>	Badger	BA	SoCC	Woodland, Farmland	Mostly lowland, lightly wooded countryside. Setts most often in woods and copses, hedgerow and scrub.

Key to Great Britain Status codes:

Ns	Nationally Scarce
Na	Nationally Notable category A
Nb	Nationally Notable category B
pRDB3	provisionally Red Data Book category Rare
pRDBK	provisionally Red Data Book category Unknown
EN	IUCN Red List category Endangered
VU	IUCN Red List category Vulnerable
Nt	IUCN Red List category Near Threatened
S1	Wildlife and Countryside Act 1981 (W&CA) Schedule 1
S5	W & CA Schedule 5
BA	Badger Act

Key to United Kingdom Biodiversity Action Plan (UKBAP) codes:

PS	Priority Species (i.e. action plan written)
SoCC	Species of Conservation Concern

Application of the List

As well as for species conservation through habitat management and enhancement the list is to be applied to purposes such as planning, as in Environmental Impact Assessments, and in assessing and planning land management proposals. For development control and land use planning needs, the list is referred to in the Finalised West Lothian Local Plan 2004. In the future it will have an additional value as the process of Strategic Environmental Assessment (SEA) is introduced in Scotland through legislation and, generally, through the duties placed on public bodies by the Nature Conservation (Scotland) Act 2004.

Species Action Plans (SAP's)

An early decision of the West Lothian LBAP steering group was to eschew the production of action plans for species in favour of those for habitats since species conservation and enhancement will generally be best achieved as a consequence of managing and improving habitats on a strategic basis. Through the LBAP review of key species local experts were approached on their views on the need for SAP's associated with the rarest and most threatened species in Britain, the Red Listed Species, that occur in West Lothian. The conclusions were as follows:-

- **Beetles** – as long as the required habitats at the sites where the Red Listed and other notables occur are kept in good conditions then separate SAP's are not required.
- **Sawflies and Craneflies** – the priority is to carry out field work to identify distribution and update old records rather than preparing SAP's.
- **Fungi** – provided the one location of the waxcap – The Ballet Dancer, was continued to be managed properly then there is no need to have a SAP for it.
- **Vascular plants** – it is important to maintain farm management techniques and practices where wild plants occur. The one rarity, Marsh saxifrage, is actively monitored on a SSSI by SNH. Therefore, no SAP is necessary.
- **Molluscs** – one species, *Lymnaea glabra*, should be monitored on the single site that it occurs, there being a high risk of extinction in the UK in the medium term. On the SSSI that it occurs its population should be included in the site condition monitoring work therefore a SAP was recommended.
- **Note:** Young's Helleborine is no longer considered a species and is not included in the list. However, it is genetically distinct and therefore considered an important variant of the Broadleaved Helleborne. Although no SAP is proposed, its status merits action where it may be put at risk.

The decision of the LBAP steering group is thus reaffirmed except in the case of *Lymnaea glabra* and Scottish Natural Heritage (SNH) has agreed to take the lead on an associated SAP.

In all other cases if a lead partner volunteers to come forward to deliver a species action plan then there will be a positive response from the Partnership within the limits of the available resources, even if the species are not on the key list. Examples are the Grey partridge (The Game Conservancy Trust) and the Tree sparrow (Royal Society for the Protection of Birds).

Future review

It is to be noted that the UK list of priority species is to be reviewed. The confirmed species targets will be published in 2006. The West Lothian list will be updated at that time to accord with the national list and will be updated after any such future reviews.

indicator species



WEST LoTHIAN LOCAL HABITAT INDICATOR SPECIES

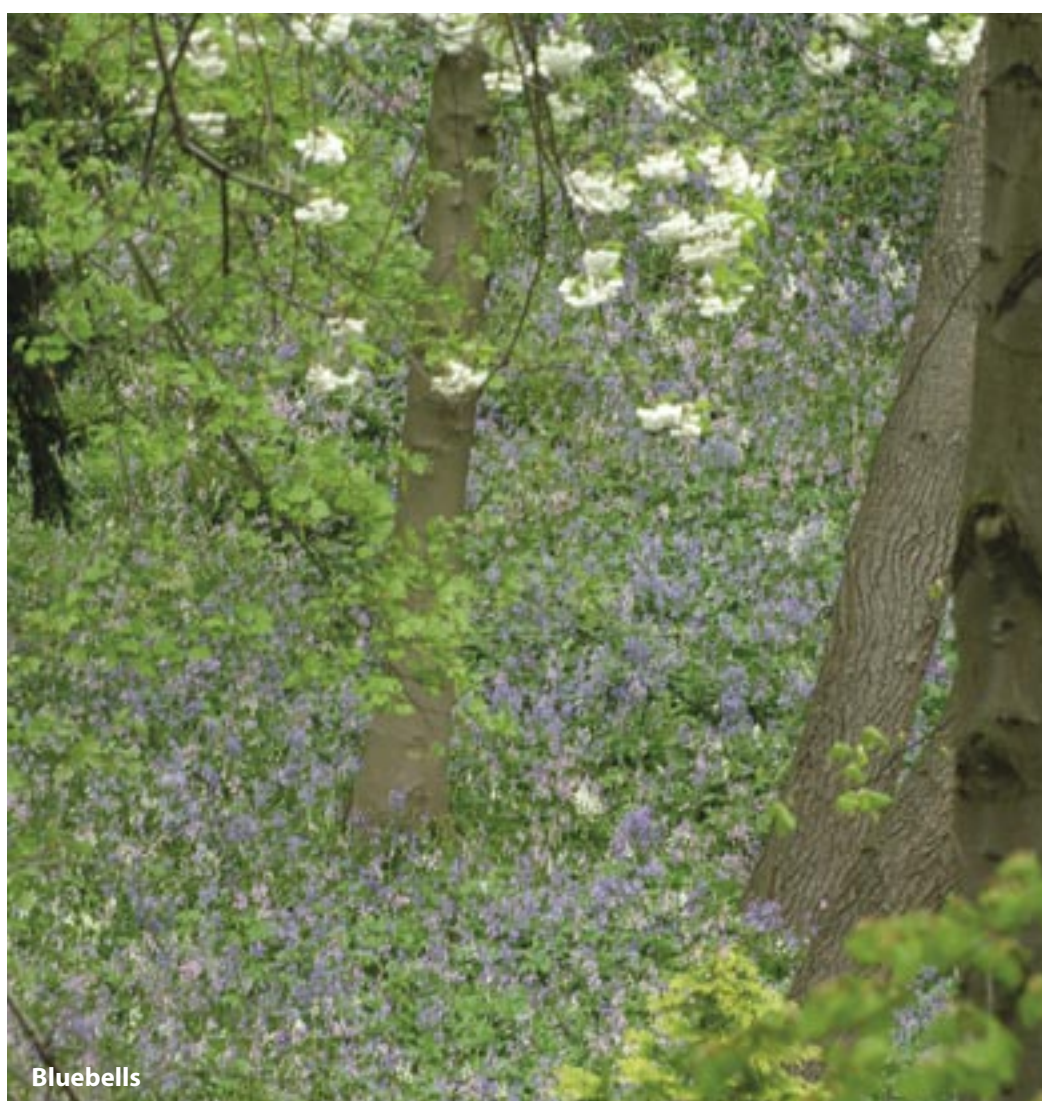
Background

In addition to those species in the key West Lothian list there are other locally important species that are indicators of the health or state of habitats. These species are characteristic of the habitats found in West Lothian. They are, therefore, indicators of good habitat management. As such they are targets for agri-environment schemes, habitat creation through landscape provision associated with development, in land use management objectives and for education and public awareness of the biodiversity wealth of West Lothian. Many of the species (e.g. grey partridge) are at risk nationally due to large scale declines and have been classified as UK Biodiversity Action Plan Priority Species. However, because they are relatively widespread sites protection is not the best conservation mechanism. They are therefore included in this list.

The species selected (table 3) have been agreed by the West Lothian Biodiversity Partnership and augments the priority list in relation to the creation, management and enhancement of habitats.

TABLE 3 LOCAL HABITAT INDICATOR SPECIES		
Common name	Scientific name	Habitat
Mammals		
Brown hare	<i>Lepus europaeus</i>	Grassland
Mountain hare	<i>Lepus timidus</i>	Uplands
Weasel	<i>Mustela nivalis</i>	Farmland
Amphibian		
Smooth newt	<i>Triturus vulgaris</i>	Ponds
Common frog	<i>Rana temporaria</i>	Ponds and wetlands
Common toad	<i>Bufo bufo</i>	Ponds and wetlands
Birds		
Kestrel	<i>Falco tinnunculus</i>	Roadsides and grassland
Skylark	<i>Alauda arvensis</i>	Grassland/heath/wasteland
Bullfinch	<i>Pyrrhula pyrrhula</i>	Hedgerows
Reed bunting	<i>Emberiza schoeniclus</i>	Wetlands
Song thrush	<i>Turdus philomelos</i>	Hedgerows and woodlands
Spotted flycatcher	<i>Muscicapa striata</i>	Woodlands
Tree sparrow	<i>Passer montanus</i>	Hedgerows and arable land
Linnet	<i>Carduelis cannabina</i>	Grassland and hedgerows
Grey partridge	<i>Perdix perdix</i>	Arable
Yellowhammer	<i>Emberiza citrinella</i>	Grassland and hedgerows
Lapwing	<i>Vanellus vanellus</i>	Grassland and cultivated land
House sparrow	<i>Passer domesticus</i>	Buildings and gardens
Pink-footed goose	<i>Anser brachyrhynchus</i>	Reservoirs & harvested cereal crops
Fieldfare	<i>Turdus pilaris</i>	Hedgerows
Swallow	<i>Hirundo rustica</i>	Wetland and farmland
Snipe	<i>Gallinago gallinago</i>	Wetland
Curlew	<i>Numenius arquata</i>	Upland and grassland
Red grouse	<i>Lagopus lagopus</i>	Heather moorland
Golden plover	<i>Pluvialis apricaria</i>	Heather moorland
Fish		
Brown trout	<i>Salmo trutta</i>	Rivers and streams
Invertebrates		
Common blue damselfly	<i>Enallagma cyathigerum</i>	Ponds and slow moving water
Common blue butterfly	<i>Polyommatus icarus</i>	Grassland
Large red damselfly	<i>Pyrrhosoma nymphula</i>	Streams and wetlands
Orange tip butterfly	<i>Anthocharis cardamines</i>	Marshes and woodland
Common hawker dragonfly	<i>Aeshna juncea</i>	Ponds and wetlands

Common name	Scientific name	Habitat
Flowering plants		
Ragged robin	<i>Lychnis flos-cuculi</i>	Wetlands
Common rampion fumitory	<i>Fumaria muralis</i>	Arable and field margins
Yellow rattle	<i>Rhinanthus minor</i>	Grassland
Common bird's foot trefoil	<i>Lotus corniculatus</i>	Grassland
Bogbean	<i>Menyanthes trifoliata</i>	Pond water margins
Cornflower	<i>Centaurea cyanus</i>	Arable and waste land
Meadow cranesbill	<i>Geranium pratense</i>	Grassland and verges
Bluebell	<i>Hyacinthoides non-scripta</i>	Ancient/old woodland
Dog's mercury	<i>Mercurialis perennis</i>	Ancient/old woodland
Thyme	<i>Thymus drucei</i>	Calcareous grassland
Trees		
Downy birch	<i>Betula pubescens</i>	Woodland
Pedunculate oak	<i>Quercus robur</i>	Woodland
Beech	<i>Fagus sylvatica</i>	Hedges and avenues
Grasses		
Quaking grass	<i>Briza media</i>	Grassland



strategic habitats



WEST LoTHIAN'S STRATEGIC HABITATS

The UK Biodiversity Action Plan lists 45 priority habitats of which 41 occur, or have occurred, in Scotland. Each of these has a national Habitat Action Plan (HAP), which identifies objectives in order to maintain, improve, restore and, in some cases, extend the habitat type. SNH reviews the distribution of priority habitats in its commissioned report 44 "A preliminary review of the distribution and extent of BAP priority habitats across Scotland" 2004.

Development of Action Plans

In the preparation of the first West Lothian LBAP a number of key strategic habitat groupings were identified for the development of five year action plans. To these soil has now been added.

Four action plans have been prepared and adopted for implementation. Each has a lead partner and a sub-group of representatives of the principal partners necessary for delivering the plan.

TABLE 4 STRATEGIC ACTION PLANS

Rivers and Streams Habitat Action Plans 2005 – 2009

Lead Partner: Scottish Environmental Protection Agency

Farmland Action Plan 2002 – 2006

Lead partner: Lothian's Farmers and Wildlife Advisory Group

Woodlands Action Plan 2002 – 2006

Lead partner: Central Scotland Forest Trust

Lowland Raised Bog Habitat Action Plan 2002 – 2006

Lead partner: Scottish Wildlife Trust

A further four represent characteristic habitats that are strategically important to West Lothian but for which no Action Plan has been prepared. Various mechanisms for delivery have developed for these but they have no dedicated sub-groups.

TABLE 5 STRATEGIC HABITATS WITH NO ACTION PLAN

Heather Moorland	Lead contributor	Pentland Hills Regional Park Ranger Service
Coastline	Lead contributor	Forth Estuary Forum
Oil shale bings	Lead contributor	West Lothian Council
Union canal	Lead contributor	British Waterways

Soil has arisen from the focus on the geodiversity of West Lothian and its importance in relation to habitat diversity. A review of the soils (2004) confirmed that there were none that merited particular conservation attention but that the management and handling of the resource needed to be influenced through planning, good practice and awareness. The preparation of a soil sustainability Action Plan has been agreed.

Future

In time it may be necessary to develop sub-sets of more focused plans associated with, for example, the farming sector and as national lead partners respond to their duties through the Scottish Biodiversity Strategy or legislation. An example might be the need for an action plan to cover open water in relation to River Basin Management Planning. The steering group will give a positive response provided adequate resources are made available to lead and deliver such plans.

rivers & streams



Rivers and Streams

Lead Partner: Scottish Environment Protection Agency

Habitat Action Plan: 2005-2009

AUDIT

Surface water habitat, rivers and wetlands, cover 500ha or 1% of the total area of West Lothian. Net change in Scotland between 1940's and 1980's was +7% (rivers -2%, streams +1%, lochs, reservoirs, rivers, canals marginal inundation and wet ground +8%).

HABITAT

West Lothian is comprised of three river catchments, the Water of Leith, River Avon and the River Almond, the latter being the largest and covering most of the area. There are also a number of small burns that drain directly into the Firth of Forth.

Many of these fresh waters and their margins are recognised for their high biodiversity conservation value. River valleys - such as the Breich Water, the Linhouse Water, the River Almond at Almondell Country Park, and the Harwood Water - support some of the area's finest remaining stands of semi-natural woodlands. These valley corridors, richly endowed with wildlife, including otters, kingfishers, dippers, bats and brown trout, are some of the most attractive and accessible places in West Lothian. The discovery of water vole on a number of burns in the central and western area of West Lothian is particularly important as the species is undergoing widespread decline across its UK range.

THREATS

Urbanisation and culverting, drainage, minewater discharges, agricultural run-off and diffuse pollution, silting through adjoining land use activities, bank poaching by livestock and invasive non-native species.

ACHIEVEMENTS SINCE 1996

- Adoption of 5 year Habitat Action Plan
- Adoption of the River Almond Integrated Catchment Management Plan
- Improvement of the water quality of the Almond from grade D to mostly grade B
- Burn environmental improvement programmes such as the White Burn, Whitburn
- River habitat enhancement on the Water of Leith, Mains Burn, Niddry Burn and Crinkle Burn
- Water management plans for ten farms (20km of watercourse around Winchburgh)
- Further development of the Sustainable Urban Drainage Scheme planning policy
- Promotion of the 4 Point Plan to address agricultural waste water pollution
- Boundaries, Banks and Birds farm grants scheme
- Otter and water vole surveys as a pre-requisite to planning consent being granted for development that involves water courses
- Discovery of water vole at new locations
- Intervention to prevent the Polkemmet mine discharging polluted water to the Almond



FUTURE INFLUENCES

- Water Environment and Water Services (Scotland) Act 2003
- Nature Conservation (Scotland) Act 2004
- Land Reform (Scotland) Act 2003 Part 1 Access
- Common Agriculture Policy (CAP) cross compliance conditions 2004
- Strategic Environmental Assessment (SEA) regulations
- Scottish Biodiversity Strategy
- West Lothian Local Plan
- River Almond Integrated Catchment Management Plan
- Forest Habitat Networks Study and Report
- Scottish Forestry Grant Scheme

TARGETS

- Achieve good status for biological indicators for all water courses by 2015
- Through planning controls, apply effective SUDs for all development
- Implement retrofit SUDs to address industrial site pollution
- Work with all landowners to apply the principles of the 4 Point Plan
- Ensure flood control works improve riparian habitats
- Adopt revised Action Plan (2005)
- Identify a river RIGS to demonstrate active geomorphological processes

PRIORITY SPECIES

The following are those of the key species that are associated with water habitats:

<i>Cephalozia catenulata</i>	(a liverwort)
<i>Philonotis caespitosa</i>	(a moss)
<i>Plagiothecium cavifolium</i>	(a moss)
<i>Lampronia fuscata</i>	(a longhorn moth)
<i>Acrotichis lucidula</i>	(a featherwing beetle)
<i>Agabus biguttatus</i>	(a water beetle)
<i>Apteropeda globosa</i>	(a leaf beetle)
<i>Hydroporus ferrugineus</i>	(a water beetle)
<i>Hydroporus obsoletus</i>	(a water beetle)
<i>Ilybus aenescens</i>	(a water beetle)
<i>Riolus subviolaceus</i>	(a riffle beetle)
<i>Stictonectes lepidus</i>	(a water beetle)
<i>Helius pallicostris</i>	(a crane fly)
<i>Limnophila verralli</i>	(a crane fly)
<i>Limonia trivittata</i>	(a crane fly)
<i>Neoscia geniculata</i>	(a hoverfly)
<i>Tipula gimmerthali</i>	(a crane fly)
<i>Phyllocolpa excavata</i>	(a sawfly)
<i>Alcedo atthis</i>	Kingfisher
<i>Myotis darbentons</i>	Darbenton's bat
<i>Arvicola terrestris</i>	Water vole
<i>Lutra lutra</i>	Otter

farmland



Farmland

Lead Partner: Lothian's Farming and Wildlife Advisory Group

Farmland Action Plan: 2002-2006

AUDIT

Grassland – 17,757ha or 36% of the total land area of West Lothian.

Net change in Scotland between 1940's and 1980's -7% for rough, intermediate and smooth grasslands

Cultivated Land – 10,666ha or 25% of the total land area of West Lothian

Net change in Scotland between 1956 and 1996 –20%

Wildlife Corridors – Net change in Scotland between 1940's and 1980's hedgerows 54%, tree lines 0, streams +1%, ditches +101%, tracks +29%

HABITAT

Grassland

Unimproved grassland is dominated by various grasses and many flowering plants. Most are a result of man's early clearance of woodland and subsequent recolonisation by trees has been prevented by grazing, mowing, ploughing or fire. Intergrades to other habitats such as woodland, heather moorland or wetlands are common. Semi-improved grasslands are those where, although there has been a measure of alteration by fertilising, reseeding or drainage, many of the original species still remain. These areas are generally biologically poorer than unimproved grasslands but are still considerably richer than improved grassland created for fodder and grazing.

Cultivated Land

In this dominant habitat type in West Lothian species diversity is usually low due to monocropping, the use of modern varieties of food crops, fertilisers and herbicides/pesticides to maximise production of good quality primary food products. The farmland varies greatly across the county with a small area of top quality land in the east and north, and a much larger area of poorer quality upland towards the west and south. The better land is capable of growing high yields of arable crops including wheat, barley, potatoes, oil seed rape and peas. The majority of cultivated farmland produces grass either solely or as part of an arable rotation. Marginal land will support only forage crops. Productivity and the range of crops grown are determined by soil types of which there is a considerable variability.

Wildlife Corridors

The stone dykes, hedges and shelterbelts that reflect man's influence on West Lothian's countryside are important landscape and wildlife corridors. As such they allow dispersal and movement between other habitats. In a similar way, the habitats associated with rivers, burns and Union Canal, and the verges alongside railways, motorways, roads, cycle tracks and footpaths provide actual or potentially valuable wildlife links across the countryside. The network is a complex of man-made and natural features linking habitats and crossing both settlements and the countryside.

The potential movement of wildlife through the countryside, the refuge value of corridors for expansion into adjoining areas, as conditions allow, and the provision of food and breeding sites, makes them an integral part of the biodiversity of West Lothian. Yet, their full potential is still largely to be achieved and the linkages with new habitats such as ponds and woodlands are still to be realised. Many features require active management to achieve this, others require enhancement while new links need to be created to develop and extend the mosaic of corridors that already exist.



2004-6475-583 Pete Cairns and rspb-images.com

Badger

THREATS

Grassland – ploughing, fertilising, drainage, herbicide application, change of land use and invasions by bracken, scrub and trees, under and over grazing.

Cultivated Land – Urban encroachment and urban fringe pressures, non-targeted cultivations and farm operations, soil erosion, loss of small scale cropping, particularly in upland/grassland areas.

Wildlife Corridors – Spray drift, urban development, service installations, salt spray, culverting, inappropriate management, fragmentation (eg hedge loss through deterioration and neglect).

ACHIEVEMENTS SINCE 1996

- Adoption of a single farmland action plan
- Boundaries, Banks and Birds farm grant scheme

- Linkage of the '100' species list to the Rural Stewardship Scheme
- Mains Burn 4 Point Plan initiative to address farm waste management
- Phase I survey information made available to farm advisers
- Continued financial support of FWAG (14 whole farm plans, 100 different farms/sites)
- Auldscathie landfill grant for farm projects around Winchburgh (80km of hedgerow entered into hedge management plans)
- Grassland surveys for future management
- Soil Sustainability Plan commissioned and published
- Provision of advice to farmers on priority species and links to grant aid sources.

FUTURE INFLUENCES

- Common Agriculture Policy cross compliance conditions 2004
- Water Environment and Water Services (Scotland) Act 2003
- Land Reform (Scotland) Act 2003 Part 1 Access
- Nature Conservation (Scotland) Act 2004

TARGETS

- Identify and raise awareness of unimproved and semi-improved grasslands and to bring into management through advice and grants
- Bring 20% of unimproved grasslands under management for biodiversity by 2010
- Provide advice to maximise benefits arising from cross compliance conditions
- Make available survey information and species distribution records to landowners
- Through planning controls, maximise wildlife corridor enhancement and creation.

PRIORITY SPECIES

The following are those of the key species that are associated with grass and farmland:

<i>Hygrocybe calytraeformis</i>	The Ballet Dancer
<i>Authoceros agrestis</i>	(a hornwort)
<i>Philonotis caespitosa</i>	(a moss)
<i>Centaurea cyanus</i>	Cornflower
<i>Dianthus deltoides</i>	Maiden pink
<i>Fumaria densiflora</i>	Dense-flowered fumitory
<i>Fumaria purpurea</i>	Purple ramping fumitory
<i>Apteropeda globosa</i>	(a leaf beetle)
<i>Dicrano tropis divergens</i>	(a plant hopper)
<i>Stiroma bicarinata</i>	(a plant hopper)
<i>Tyto alba</i>	Barn owl
<i>Circus cyaneus</i>	Hen harrier
<i>Myotis nattereri</i>	Natterer's bat
<i>Myotis daubentoni</i>	Darbenton's bat
<i>Pipistrellus pipistrellus</i>	Pipistrelle
<i>Plecotus auritus</i>	Brown long-eared bat
<i>Meles meles</i>	Badger

Note: The diversity of wildlife corridors implies that many key species will be represented since the habitats are fragments of the variety of habitat types found in West Lothian.

woodland



Woodland

Lead Partner: Central Scotland Forest Trust

Woodland Action Plan: 2002-2006

AUDIT

316ha or 0.74% of the total land area of West Lothian is native woodland.

Net change in Scotland between 1940's and 1980's was +199%

There are many different types of woodland habitat in West Lothian. These range from the mixed broadleaved riverside woodlands along the Avon and the Almond, the historic policy woodlands of Hopetoun Estate, the smaller designed landscapes, farmland shelterbelts from the 18 and 19th century enclosures, to the larger coniferous plantations at Beecraigs, Camilty and Fauldhouse. Each woodland type has a different range of biodiversity depending on its age, size, tree species and surrounding habitats. Recent surveys have shown that in total woodland habitats of all types cover 6,750 ha or roughly 14% of the land surface in West Lothian.

HABITAT

Those woodlands which contain the highest levels of biodiversity are the ancient broadleaved woodlands and the long-established woodlands of semi-natural origin. Over many years these have developed greater assemblages/groups of woodland flora, invertebrates, small mammals and woodland birds. Species associated with these woods include green woodpecker and tree pipit, wood anemone and broadleaved helleborine. Other species such as bats and badgers rely on woodlands associated with habitats such as rivers and grasslands for their survival. Ancient woodland only covers 316 ha in West Lothian of which about half

is estimated to be of semi-natural origin. The largest and most notable is Calder Wood, which is at least 230 years old and is now the subject of Scottish Forestry Grant Scheme to enhance its management as an ancient woodland.

More recently there has been an increase in new coniferous woodland but an overall reduction in broadleaved woodland. In Scotland it is estimated that there has been a 177% increase in woodland and scrub habitats between the 1940's and the 1980's but a decline of 23% in broadleaved woodland over the same period. In the Lothian's the decline in broadleaved woodland is estimated to be much higher, at 30%, indicating an overall loss in woodland biodiversity. The publication of the Central Scotland Forest Strategy (2004) and the changes to the forestry grant support mechanisms provides new incentives to address such issues.

Finally, the increased woodland planting in West Lothian creates new habitats suitable for deer colonisation both in the rural and urban environment. Accompanying this is the increased risk to public safety from deer involvement in road traffic accidents as well as an increased impact by deer on the West Lothian priority strategic habitats.

THREATS

Lack of management and renewal, felling, urban encroachment, undergrazing, recreational pressure, fly tipping, increasing numbers of Roe deer and non-native species invasion.

ACHIEVEMENTS SINCE 1996

- Adoption of Woodland Action Plan
- Commissioned Forest Habitat Network Study
- Management of Bathgate Hills woodlands
- Targeted woodland grant create 903ha of new woodland
- Lowland crofting planning policy responsible for new woodlands as part of this total
- Community woodlands established at Broxburn, Polbeth and Breich
- Coniferous forest restructuring underway on public and private holdings
- 9ha Millennium woodland planted at Hardhill, Armadale
- Pilot Health Walk established through the Black Moss Woodland, Armadale
- Native tree planting specified as planning conditions
- Condition assessment of all SSSI woodland features
- Records of badger setts put onto a database and mapped

FUTURE INFLUENCES

- Scottish Forest Strategy
- Central Scotland Forest Strategy
- West Lothian Local Plan
- Nature Conservation (Scotland) Act 2004
- Scottish Biodiversity Strategy
- Scottish Forestry Grant Scheme and associated initiatives

TARGETS

- Prevent the further loss of ancient or long established semi-natural woodland
- Implement the Forest Habitat Network study findings through the Local Plan
- Increase broadleaved and native woodlands by new planting, conversion and regeneration through grant aid promotion and planning conditions
- Sustain management programme of council owned woodland
- Increase biodiversity through Forest Design Plans
- Monitor the impact of deer on public safety and the priority strategic habitats
- Prepare a contingency plan to manage deer if required with primary concern for public safety and deer welfare

PRIORITY SPECIES

The following species are those of the key species associated with woodlands:

<i>Pyrola media</i>	Intermediate wintergreen
<i>Atemelia torquatella</i>	(a small ermine moth)
<i>Lampronia fuscata</i>	(a long horn moth)
<i>Phyllonorycter strigulatella</i>	(a micro-moth)
<i>Xylena exsoleta</i>	Sword-grass (moth)
<i>Acrotichis lucidula</i>	(a featherwing beetle)
<i>Curculio villosus</i>	(a weevil)
<i>Judolia sexmaculata</i>	(a long horn beetle)
<i>Luperus flavipes</i>	(a leaf beetle)
<i>Tropiphorus terricola</i>	(a weevil)
<i>Stiroma bicarinata</i>	(a plant hopper)
<i>Limnophila pulchella</i>	(a crane fly)
<i>Limonia trivitta</i>	(a crane fly)
<i>Molophilus corniger</i>	(a crane fly)
<i>Tipula pseudovariipennis</i>	(a crane fly)
<i>Dicrostema gracilicornis</i>	(a sawfly)
<i>Loxia curvirostra</i>	Common crossbill
<i>Tetrao tetrix</i>	Black grouse
<i>Myotis nattereri</i>	Natterer's bat
<i>Myotis daubentoni</i>	Darbenton's bat
<i>Pipistrellus pipistrellus</i>	Pipistrelle
<i>Plecotus auritus</i>	Brown long-eared bat
<i>Sciurus vulgaris</i>	Red squirrel
<i>Meles meles</i>	Badger



Lowland Raised Bog

Lead Partner: Scottish Wildlife Trust

Lowland Raised Bog Habitat Action Plan: 2002-2006

AUDIT

2201ha or 4.2% of the total land area of West Lothian.

Net change in Scotland between 1940's and 1980's was -21%

HABITAT

Peatlands have come about through the accumulation of organic matter produced as the result of the acid conditions of habitats dominated by Sphagnum mosses. These mosses thrive generally in the UK because of its moist climate and particularly in Scotland because of the generally acid geology and high rainfall. West Lothian has a high rainfall because of its location and altitude.

As a consequence, large areas of the hill land are covered in peat, of which 1% is blanket bog. Much of the rest is heather covered moorland (up to 13% of the land area) or has been improved to grassland. Active blanket bog is a priority habitat in European terms.

Lowland raised bogs are restricted to the western fringe of Europe where the peat has accumulated into a dome higher than, and hydrologically separate from, the surrounding water table therefore the source of water and nutrients is entirely from rainfall. Some of these rare bogs have been identified in West Lothian.

Even when designated or identified as of local importance very few peat bogs are actively managed. The exceptions are Blawhorn Moss National Nature Reserve at

Blackridge, and Scottish Wildlife Trust Nature Reserves at Tailend Moss, Bathgate and Longridge Moss, Stoneyburn. The blanket bog at Cobbinshaw is still active with the growing sphagnum forming new peat. In all there are five bogs notified as Sites of Special Scientific Interest and these cover the broad range of peatland types in West Lothian.

THREATS

Drainage and reclamation, fires, woodland encroachment, open cast mining, over grazing.

ACHIEVEMENTS SINCE 1996

- Adoption of Lowland Raised Bog Habitat Action Plan
- Protection of peat bogs in the Local Plan
- Continued hydrological and vegetation management of Blawhorn Moss National Nature Reserve (NNR)
- Criteria limiting tree planting on peat adopted in the Central Scotland Forest
- Longridge Moss Nature Reserve established (Scottish Wildlife Trust)
- Construction of facilities, paths and boardwalk, to enable the public to visit Blawhorn Moss NNR
- Awareness raising at Blackridge Primary School

FUTURE INFLUENCES

- Nature Conservation (Scotland) Act 2004
- Common Agricultural Policy cross compliance condition 2004

TARGETS

- No reduction in the area of raised bog
- Declare Easter Inch Moss a Local Nature Reserve
- Promote alternatives to peat in horticultural composts
- Protect through West Lothian Local Plan
- Raise awareness of peat bogs as a rare habitat type
- Identify a peat bog as a RIGS

PRIORITY SPECIES

The following are those of the key species associated with bogs:

<i>Vaccinium microcarpum</i>	Small cranberry
<i>Coenonympha tullia polydama</i>	Large heath
<i>Rhamphomyia obscura</i>	(a dance fly)

heather moorland



Heather Moorland

Lead Contributor: Pentland Hills Regional Park Ranger Service

No Habitat Action Plan

AUDIT

1339ha or 2.8% of the total land area of West Lothian.

Net change in Scotland between 1940's and 1980's was -28%

HABITAT

Heather moorland (upland dwarf shrub heath) is only found in a few countries of the world, mainly the UK, Ireland and the fringes of the western seaboard of NW Europe. For West Lothian, recent surveys indicate approximately 1,400 ha of heather moorland and upland heath exists. It is a distinctive and characteristic feature of the Pentland Hills contributing to the overall diversity of the county.

In Scotland there has been a marked reduction in heather dominated moorland between the 1940's and the 1980's. What remains in the uplands of Scotland is therefore of international significance.

Heather moorland is a complex habitat and up to 19 different types are recognised botanically. The majority are dominated by heather (*Calluna vulgaris*) but other species such as blaeberry (*Vaccinium myrtillus*) are also common. The distribution of these communities is influenced by climate, altitude, aspect, slope and management practices, including grazing and burning.

Up to 40 species of upland moorland birds depend on heather moorland for their survival. The numbers of these birds and their range have declined since the early

1970's throughout Scotland due to a loss of habitat from afforestation and heavy grazing. Species such as black grouse and merlin are now relatively scarce both, however, also depend upon woodland margins on the edges of moorland.

The base-rich flushes and mires often associated with heather moorlands are important habitats for specialist vascular and non-vascular plant communities, including Yellow marsh saxifrage (*Saxifraga hirculus*).

THREATS

Afforestation, overgrazing, poor muirburn practices, reclamation, heather beetle infestations, wind farms, acidification and nitrogen deposition, climate change and peat degradation.

Note: The interaction of two or more of these factors often greatly increases the overall impact on upland heathland vegetation. For example, poorly managed burning followed by heavy grazing will result in the loss of dwarf shrubs more rapidly than would either factor in isolation.

ACHIEVEMENTS SINCE 1996

- Promoting good practice for Muirburn with landowner and land managers
- Assisting land managers with Muirburn by providing trained staff and equipment
- Drawing up a moorland fire plan and being prepared to assist in event of an emergency
- Responding to consultation from landowners with a view to promoting good moorland habitat management
- Training volunteer rangers, staff and other individuals to survey for Black grouse, Hieroglyphic ladybird and reptiles, all indicators of good heather moorland
- Surveying for Black grouse, Adder and Hieroglyphic ladybird
- Leading guided walks with the aim of raising awareness of the importance of heather moorland
- Writing a black grouse habitat action plan
- Carrying out Muirburn
- Providing information to visitors about responsible access over heather moorland
- Providing signs and interpretation to land managers to assist with good moorland management
- Yellow marsh saxifrage (*Saxifraga hirculus*) survey
- Polkemmet moorland and Black Law heather moorlands to be restored as a consequence of planning conditions (2003/04).

FUTURE INFLUENCES

- Nature Conservation (Scotland) Act 2004
- Common Agricultural Policy cross compliance conditions 2004
- Pentland Hills Regional Park Management Plan

TARGETS

- Ensure all forest design plans give consideration to the restoration of heather moorland
- Protect and enhance heather moorland through development conditions
- Encourage moorland conservation through advice and Rural Stewardship Scheme (RSS) promotion
- Promote moorland Natural Care Scheme.

PRIORITY SPECIES

The following are those of the key species associated with heather moorland

<i>Saxifraga hirculus</i>	Marsh saxifrage
<i>Xylena exsoleta</i>	Sword-grass (moth)
<i>Ilybius aenuscens</i>	(a water beetle)
<i>Luperus flavipes</i>	(a leaf beetle)
<i>Limnophila pulchella</i>	(a crane fly)
<i>Falco columbarius</i>	Merlin
<i>Circus cyaneus</i>	Hen harrier
<i>Falco peregrinus</i>	Peregrine
<i>Tetrao tetrix</i>	Black grouse
<i>Vipera berus</i>	Adder

coastline



Coastline

Lead Contributor: Forth Estuary Forum

No Habitat Action Plan

AUDIT

273ha or 0.5% of the total land area of West Lothian is intertidal.

Net change in the national coastline habitats has been loss through reclamation and development but the land ownership and the nature of the West Lothian coastline has protected it from such pressure.

HABITAT

West Lothian's short coastline of just 5.5km is part of an extensive estuary area of intertidal flats with shoreland features and habitats. It is an area dominated by natural tidal influences with internationally important populations of wading birds and wildfowl. The area is potentially vulnerable to development and disturbance. Pollution, both coastal and marine in origin is a real threat.

The substrate includes sand, mud, shingle and rocks supporting many invertebrate species, seaweeds, sea grass and algal beds. Small areas of saltmarsh occur on the upper shore. The Forth Estuary has National and European designation status (Special Protection Area).

THREATS

River/estuarine borne pollution, development including coastal reclamation and recreation pressure on the salt marsh/sea grass areas.

ACHIEVEMENTS SINCE 1996

- Endorsement of the Forth Integrated Management Strategy
- Designation of the estuary as a Special Protection Area (SPA)
- Adoption of the River Almond Integrated Catchment Management Plan
- National vegetation classification survey of Firth of Forth
- Saltmarsh condition assessment of the Firth of Forth
- Low-tide bird survey 2003/04
- Shellduck survey 2003

FUTURE INFLUENCES

- Water Environment and Water Services (Scotland) Act 2003
- Scottish Executive policy on Integrated Coastal Management Zones
- Scottish Biodiversity Strategy 2004
- River Almond Integrated Catchment Management Plan

TARGETS

- The development of a single habitat action plan for the Forth Estuary
- River Basin Management Plan for the Forth Estuary
- Improvement of river water quality through development control conditions and the contributions of the revised Rivers and Streams Action Plan (2005)

PRIORITY SPECIES

The following are those of the key species found on the coast

<i>Zostera marina</i>	Eelgrass
<i>Zostera noltii</i>	Dwarf Eelgrass

oil shale bings



Oil Shale Bings

Lead Contributor: West Lothian Council

No Habitat Action Plan

AUDIT

139ha or 0.4% of the total land area of West Lothian.

Net change – A unique habitat represented only in West Lothian which has been reduced by previous land reclamation programmes.

HABITAT

For nearly 200 years the oil shale reserves of West Lothian were exploited with significant influence on its economy, culture and landscape. The present day legacy of the industry is the red shale bings that occur primarily between Winchburgh and West Calder. The bings dominate the countryside and for some still have an image of dereliction. This is not helped when a number of bings are being worked as a source of fill material. While the coal bings of West Lothian have largely disappeared as a consequence of rehabilitation schemes the legacy of the oil shale industry is going to remain as a consequence of protection measures for the most important ones. They provide a distinctiveness to the West Lothian landscape and, equally for some, provide a sense of heritage and history.

The shale is inert and colonisation by plants and animals on many bings has created a diverse variety of habitats. The bings are islands in a primarily agricultural landscape and provide a valuable refuge for wildlife. This is illustrated well at the Scottish Wildlife Trust's North Addiewell Nature Reserve and also on the bings at Faucheldean and the Five Sisters at Westwood, all of which are protected from

development. Indeed both the Five Sisters and Greendykes Bings are now scheduled as historic industrial monuments.

The habitat variety extends from semi-natural grassland, to heather scrub and pioneering birch woodland. Rare and unusual plants such as club mosses and orchids can be found while the variety of habitats provide a refuge for a wildlife which can be hard pressed in the surrounding area.

THREATS

Reclamation; public pressure through informal recreational use; restoration through non-native species planting; insensitive habitat management.

ACHIEVEMENTS SINCE 1996

- West Lothian Council purchase of part of the Greendykes Bing
- Protection of key sites through Local Plan policy

FUTURE INFLUENCES

- West Lothian Local Plan

TARGETS

- Selection of a bing as a Regionally Important Geological Site (RIGS) for education and awareness raising.

PRIORITY SPECIES

The following are those of the key species that are associated with oilshale bings:-

<i>Micarea lithinella</i>	(a lichen)
<i>Steinia geophana</i>	(a lichen)
<i>Stereocaulon nanodes</i>	(a lichen)
<i>Stereocaulon saxatile</i>	(a lichen)
<i>Stereocaulon leucophaeopsis</i>	(a lichen)
<i>Bacidia viridescens</i>	(a lichen)
<i>Caloplaca cerinella</i>	(a lichen)
<i>Buxbaumia aphylla</i>	(a moss)



union canal



Union Canal, Winchburgh

Union Canal

Lead Partner: British Waterway

No Habitat Action Plan.

AUDIT

Around 17km length that links to the east with the Edinburgh canal basin at Lochrin and to the west with the Falkirk Wheel and the link to the Forth and Clyde Canal.

Net change has been achieved through the re-opening of the full length of the Union Canal as part of the Millennium Link project (1998-2001). This entailed removing all blockages and the building of a new length of canal to create the link beneath the M8.

HABITAT

The principal habitats of the canal are the open, slow moving fresh water; the marshland between the open water and the banks, particularly on the side opposite the towpath and in the passing bays; and the grassland and woodland communities associated with the waterway. One adjoining section, at Philpstoun Muir, is a SSSI.

The species that inhabit the canal are generally neither unique, or rare but considered as a whole it is an important wildlife corridor that provides different habitats than that of rivers and streams.

A biological survey of the canal in 1976 created a data baseline and development and management works by British Waterways is according to practices that maximise its biodiversity value. As an important recreational and amenity resource the canal is an important asset and therefore it is important that there is a balance

in its use and development that needs to be judged to ensure that its character is not destroyed. As possibly the most attractive section of the lowland canal system, its sensitive management is particularly important.

Dredging and weed cutting is undertaken on the waterway and mowing of the towpath is a seasonal necessity. However, these are undertaken to sustain the natural resource.

THREATS

Development and increased recreational use; silt disturbance and other sources of water pollution.

ACHIEVEMENTS SINCE 1996

- Removal of all blockages to recreate a fully navigable waterway
- Dredging of the full canal length to enable navigation
- Upgrading of the towpath
- Publication of a geological poster of the canal.



FUTURE INFLUENCES

- Scottish Biodiversity Strategy
- Water Environment and Water Services (Scotland) Act 2003

Targets

- Preparation of an action plan by 2009
- All canal linked development to maximise its biodiversity contribution
- Contribute as a corridor to develop the Forest Habitat Network of native woodland
- Develop the interpretation of geological features along the route

PRIORITY SPECIES

The following are those of the key species that are associated with water habitats:

<i>Cephalozia catenulata</i>	(a liverwort)
<i>Philonotis caespitosa</i>	(a moss)
<i>Plagiothecium cavifolium</i>	(a moss)
<i>Lampronia fuscata</i>	(a longhorn moth)
<i>Acrotichis lucidula</i>	(a featherwing beetle)
<i>Agabus biguttatus</i>	(a water beetle)
<i>Apteropeda globosa</i>	(a leaf beetle)
<i>Hydroporus ferrugineus</i>	(a water beetle)
<i>Hydroporus obsoletus</i>	(a water beetle)
<i>Ilybus aenescens</i>	(a water beetle)
<i>Riolus subviolaceus</i>	(a riffle beetle)
<i>Stictonectes lepidus</i>	(a water beetle)
<i>Helius pallicostris</i>	(a crane fly)
<i>Limnophila verralli</i>	(a crane fly)
<i>Limonia trivittata</i>	(a crane fly)
<i>Neoascia geniculata</i>	(a hoverfly)
<i>Tipula gimmerthali</i>	(a crane fly)
<i>Phyllocolpa excavata</i>	(a sawfly)
<i>Alcedo atthis</i>	Kingfisher
<i>Myotis darbentons</i>	Darbenton's bat
<i>Arvicola terrestris</i>	Water vole
<i>Lutra lutra</i>	Otter





SOIL

Lead Partner: West Lothian Council

Action Plan to be prepared.

AUDIT

West Lothian Soil Sustainability Plan published 2003

Net change has been a loss of soils through urban development, poor handling and modification.

HABITAT

The parent material for most soils in West Lothian is derived from rocks of the Carboniferous age. The exceptions are those in the south east which are formed mainly of Devonian period rocks. The majority of soils are formed from glacial till materials deposited during the Ice Age. There are no rare soil types that necessitate special conservation.

The soil types have influenced the farming systems of West Lothian with arable cropping dominating the better soils in the south and east and livestock being more common on the imperfect and poor draining soils to the south and west of the Bathgate Hills. In the last 40 years afforestation has taken place on the poorest soils for agriculture on the southern and western moorland areas.

The variety of habitats and land uses are a reflection of soil type and their characteristics. Whilst the biodiversity of soils, including earthworms, fungi and bacteria, is influenced by fertility, drainage and composition the habitats that they support are also influenced by these factors. As a consequence, the conservation of soils is as vital an objective as the conservation of the plants and animals that make up the habitats that they support.

As a natural resource its sustainability is much neglected and in the past the loss of soils and poor handling has been characteristic of development. As the urbanisation of West Lothian increases, more attention is needed to sustain and conserve soils. The priority will be better handling and restoration to ensure that open space habitat and private garden provision is determined by improved knowledge of the resource and better management.

THREATS

Climate change and increased rainfall; intensive cultivation and loss of organic matter; urbanisation and soil loss; poor handling and management and soil structure; poor restoration techniques.

ACHIEVEMENTS SINCE 1996

- Publication of West Lothian Soil Sustainability Plan 2004
- Introduction of policies in Local Plan

FUTURE INFLUENCES

- Common Agriculture Policy cross compliance conditions 2004
- Scottish Biodiversity Strategy
- West Lothian Local Plan

TARGETS

- Adoption of a Soil Sustainability Action Plan by 2006
- Introduction of policies in Local Plan
- Provision of advice and guidance in association with CAP reform conditions
- Guidance for developers
- Introduction of soil assessments and soil sustainability plans for major development sites
- SUDs techniques to be applied according to soil drainage capabilities and increased rainfall projections
- Identify a location to raise awareness of soil through a RIGS designation



Witch Craig Wall, Bathgate Hills

AWARENESS RAISING

Background

The first West Lothian Biodiversity Action Plan was approved for public consultation in 1997 and adopted in 1998. While its focus has been on delivering action programmes for strategic habitats it has been accompanied by high profile awareness raising events and initiatives throughout. These have been aimed at the general public, key stakeholders and sectors. They have had the objective of raising the profile of biodiversity as a policy and implementation priority by the council and creating linkage to its other strategic programmes. They have also supported and promoted the work of other partners in their day-to-day roles and their local and national commitment to the Scottish Biodiversity agenda.

Activities and events have included:-

- Water Week
- Woodlands Week
- West Lothian Environment Fair
- West Lothian's Garden Competition
- Geological sites leaflet series (RIGS)
- Boundaries, Banks and Birds farm grants
- Auldcaithie Landfill grant farms project
- Grounds for Awareness projects
- Circulation of the priority "30" list of habitats and species for rural Stewardship Scheme grants to all farmers and landowners
- Annual grant to the Scottish Wildlife Trust Members' Centre for school projects

- Travelling Museum geological exhibition
- West Lothian Bulletin Environment Supplement
 - Sustainable Development 2000
 - Water 2001
 - Biodiversity 2002
 - Access 2003
 - River Almond 2004
- “Yellow Fish” Campaign (pollution awareness)
- “Don’t Feed the Swans – too much” Campaign
- Nature Reserves open days
- Construction of the Witch Craig geological wall
- Levenseat Trust School Acorn Award
- Ranger led biodiversity walks
- Publication of Soil Sustainability Plan
- Press releases, e.g. Water vole discovered in Whitburn

The awareness of the quality of West Lothian’s biodiversity, the threats, what individuals can do and where to get advice is a progressive need. In addition, through policy and strategies, by staff training and the promotion of good practice the focus has increased in readiness for the statutory duties that will have to be delivered under the Nature Conservation (Scotland) Act 2004.

FUTURE ACTIONS

- Link and promote biodiversity through economic and social strategies, the Community Plan and the Sustainable Development Strategy
- Raise awareness of the duties under the Nature Conservation (Scotland) Act 2004 amongst professionals
- Support the West Lothian Environment Support Group and the Environment Fair
- Continue grants schemes to encourage biodiversity projects by communities, school and farmers
- Promote national environmental campaigns and good practices at the local level
- Work with business to introduce biodiversity as part of the environmental commitment and raise awareness amongst this sector using pilot initiatives
- Further develop the designation and interpretation of RIGS
- Use the West Lothian Bulletin for effective delivery of biodiversity reporting to every household
- Designation of Easter Inch Moss Local Nature Reserve

monitoring



Chaffinch

MONITORING, SURVEYS AND STUDIES

National Monitoring

The UK Biodiversity Action Plan has established a planned approach to tracking progress on the targeted priority habitats and species and other local priorities. The 2002 reporting round included the progress being delivered through the West Lothian LBAP. The progress can be viewed on the UK Biodiversity website (www.ukbap.org.uk).

The development of the Biodiversity Action Reporting Systems (BARS) is being supported by the country biodiversity groups. Its launch in 2004 will improve communication, and support the planning, monitoring and reporting requirements of national and local biodiversity action plans. The role of the Lothian Wildlife Information Centre is assisting the steering group in future monitoring and reporting needs will be investigated as the demands from the Scottish Executive increase, particularly in relation to indicators set for the implementation of the Scottish Biodiversity Strategy.

Surveys

As part of the planning process it is now standard to require developers to undertake surveys of otters and water voles where applications involve or are adjacent to water courses and water bodies. Bat surveys of roof spaces and mature trees are required where renovation work and tree felling may be involved. Badger surveys are also required, where considered necessary. As part of Environmental Impact Assessments other protected and priority species listed in the LBAP are also surveyed.

Surveys are undertaken where woodland planting may impinge upon water courses and possible water vole habitat.

The Scottish Wildlife Trust retains a programme of surveys associated with local wildlife site identification and Scottish Natural Heritage contributes to habitat and species information through targeted surveys such as that for alien plants. SEPA undertakes River Habitat Surveys.

The importance of the Lothian's Wildlife Information Centre cannot be under-estimated as the need for biodiversity data increases. This trend will continue as the introduction of Strategic Environment Assessment legislation is extended in Scotland to apply to all plans and strategies.

Studies Undertaken

A number of studies have been undertaken to advance the application of biodiversity enhancement during the plan period.

- a. A Forest Habitat Network study was commissioned by SNH in 2003. This will be important in influencing the woodland action programme and future development planning in West Lothian to ensure that opportunities for implementation are not lost.
- b. A soil sustainability plan for West Lothian, was published by the council in 2004 and this will form the basis of Local Plan policy and the development of good practice for soil handling and restoration on development sites. It was also distributed to secondary schools and libraries for education purposes.
- c. A pioneering study was commissioned by the council to assess the biodiversity value of proposed Local Plan core housing sites, as part of the sieving process to determine the preferred sites to meet Structure Plan allocations. This used existing data as well as the interpretation of on site habitats in relation to the likely species present and their LBAP status. It illustrated how site records and habitat information could be applied for planning purposes.
- d. An ecological study was undertaken of the Dedridge Burn, Livingston to identify biodiversity conservation needs in advance of flood management works. This is part of a wider project to improve the burn corridor and tackle pollution. The study provides baseline information as well as proposals for future works.
- e. A survey of unimproved grasslands in the Bathgate Hills Area of Great Landscape Value was the precursor to the provision of advice and guidance to land managers to conserve the declining habitat type.

Future Actions

- Report on the West Lothian LBAP progress using BARS
- Support the Lothian's Wildlife Information Centre
- Monitor planning applications for biodiversity impact
- Developers to undertake biodiversity surveys as appropriate to the site
- Audit of West Lothian's geology to prepare a geodiversity plan
- Targeted studies to be funded to further the understanding of the biodiversity of West Lothian

APPENDIX 1: MEMBERSHIP OF THE WEST LOTHIAN LBAP STRATEGY STEERING GROUP

Central Scotland Forest Trust

Forestry Commission Scotland

Lothian's Farming and Wildlife Advisory Group

Royal Society for the Protection of Birds

Scottish Agricultural College

Scottish Environment Protection Agency

Scottish Rural Property and Business Association

Scottish Natural Heritage

Scottish Wildlife Trust

West Lothian Council

APPENDIX 2: OTHER LEAD PARTNERS AND CONTRIBUTING BODIES

Adjoining Local Authorities

British Geological Survey

British Trust for Conservation Volunteers (Scotland)

British Waterways

Forestry Commission Scotland (Enterprise)

Forth Estuary Forum

Lothian's and Borders Regionally Important Geological Sites Group

Lothian's Wildlife Information Centre

National Farmers' Union of Scotland

Pentland Hills Regional Park Ranger Service

Royal Scottish Forestry Society

Scottish Water

West Lothian Environmental Support Group

The Woodland Trust

