Dunbartonshire local biodiversity Action Plan

Dunbartonshire Biodiversity Partnership 2010 - 2013





02/03

foreword

Foreword

Welcome to the Dunbartonshire Local Biodiversity Action Plan!

The plan, created through a formal agreement with East Dunbartonshire Council and West Dunbartonshire Council, and co-funded by Scottish Natural Heritage represents the final action plan required to deliver full support of biodiversity conservation by local authorities and biodiversity partnerships across Scotland.

Aimed at the general public, schools, conservation interest groups, businesses, non-government organisations and Council departments, the plan aims to give a very broad overview of the issues facing nature conservation in Dunbartonshire today. The plan, though complex in nature, will hopefully reflect the problems we face along with the potential of change we can achieve. Our natural resources are threatened from a variety of factors such as climate change, urban expansion, habitat degradation, poor management, lack of awareness and anti-social behaviour. It is extremely important that we stress the urgency with which we need to address such issues and encourage sustainable use of the landscape and protection of its species.

More so now than ever, we need the support of landowners, developers and the general public to look after our wildlife so that we can pass on a healthy balance to future generations.

Rhondda Geekie
Leader East Dunbartonshire Council

Ronnie McColl
Leader West Dunbartonshire Council





General outline of the Plan

The Plan will be divided into 4 main parts. The first part will give an overview of biodiversity, the reasoning behind the drawing up of the Dunbartonshire Local Biodiversity Action Plan and finally the funding streams and mechanisms that could be used to implement the work. Exciting times lie ahead for Dunbartonshire - the collaborations formed through the Dunbartonshire Biodiversity Partnership will enable us to focus on projects that will help improve our species and habitats thought to be in decline, and address levels of landscape fragmentation.

Section 2 gives a summary description of the main landscape types found in both East and West Dunbartonshire, along with a general description of the sites that are known to be important to nature conservation.

Section 3 details the four main groups that will form the basis of the implementation work of the Dunbartonshire Biodiversity Partnership – focusing on Urban, Rural, Woodland and Wetland (including Coastal) areas. We would encourage local residents to actively take part in surveying and practical conservation projects with any of the organisations listed, and would stress that membership of the partnership is open to new organisations and/or individuals.

Finally, the last section is aimed at local residents and schools, and will give tips on how everyone can help biodiversity in their local area.

On behalf of East Dunbartonshire Council and West Dunbartonshire Council we would like to thank all those involved in the Dunbartonshire Biodiversity Partnership, in particular Theresa Dockery who kindly supplied most of the photographs used in the document. Finally, we would like to celebrate the work and life of Dr. Keith Futter, a dedicated local conservationist whose passion for life and nature conservation is sorely missed.

We hope that this LBAP inspires you to help play a part in looking after Dunbartonshire's wildlife, and we would like to thank you for your interest.

Biodiversity Officer

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Introduction

What is "Biodiversity"?

In simple terms, biodiversity can be defined as the variety of life found on Earth. More specifically, biodiversity is the variety and abundance of species, their genetic composition and the natural communities, ecosystems and landscapes in which they occur. Biodiversity has come into mainstream terminology in the last few decades, primarily with the reporting of increased threats to living systems and species on local, national and global scales. In the last 100 years, over 100 species have become extinct in the United Kingdom alone: if such figures are extrapolated globally, it may well be that over 50,000 species are lost every year.

Why conserve biodiversity?

It has been estimated that if everyone continued their current levels of consumption of natural resources, we would need 3 more Earths to sustain us! It is therefore crucial that we embrace sustainable use of our habitats and take responsibility for biodiversity. The reasons for why we need to do this are numerous and wide ranging:

- **Providing essential products and materials**
  Biodiversity provides us with oxygen, food, medicine, clothing and the materials to build our homes. It is therefore vital that we protect biodiversity to sustain life.

- **Tackling climate change**
  Woodlands and peat bogs act as "carbon sinks" that can help reduce the effects of climate change. Natural floodplains and coastal areas can lessen the severity of flooding, while wildlife corridors can facilitate the movement of species affected by changes in the local climate.

- **Health of the environment**
  Biodiversity is inexorably linked to sustainable development, with rich biodiversity generally associated with healthy environments (that is, areas with a good variety of habitats free from man-made disturbance and excellent air, soil and water quality).

- **Helping to sustain local economies**
  Biodiversity can support a number of jobs linked to conservation management, and can sustain a number of traditional rural skills currently in danger of disappearing. New business ventures such as agri-tourism and organic farming enable farmers and land managers to diversify market opportunities while preserving or enhancing biological integrity.

- **Contributing to our health and wellbeing**
  Natural areas and urban greenspace help enhance our physical and mental well being, allowing us to escape the "hustle and bustle" of everyday life. The outdoor setting can be a superb educational resource for the young and old, and enables us to take part in outdoor recreation, exercise and wildlife appreciation.

- **Linking cultural heritage and identity**
  Biodiversity defines local character, and represents how we manage our land today. Key features such as hills, prominent upland flanks or rivers define our local landscape and need to be cherished and protected.

- **Providing opportunities for community engagement and volunteering**
  Practical conservation projects enable volunteers to bring a local area back into positive management. To help preserve the integrity of a site, it is also important that the community take pride in their local space, and help look after it.

- **Strengthening of environmental stewardship principles**
  To ensure the survival of our habitats and species, and to pass down a healthy stock of natural assets to future generations, we must accept that we play a defining role in the sustainability and health of our planet. As a consequence, we must all afford respect and protection to wildlife, along with the natural landscapes in which we live.

Section 1

Biodiversity Action

Since signing the Convention on Biological Diversity at the Earth Summit in Rio de Janeiro in June 1992, the UK has committed itself at both the national and local level to halting the loss of biodiversity through the targeted action of species and habitats. In 1994 the UK Government produced the UK Biodiversity Action Plan (UK BAP) which identified our rarest and most threatened species and habitats. The action plan, which comprised of 391 UK Species Action Plans (SAPs) and 45 UK Habitat Action Plans (HAPs) outlined conservation targets and appropriate actions that could help counteract any decline and achieve the following objectives:

- Development of costed targets for the most threatened UK species and habitats
- Establishment of a practical system of handling biological data at both the local and national level
- Promotion of public awareness and understanding of biodiversity
- Creation and implementation of Local Biodiversity Action Plans (LBAPs)

The Scottish Biodiversity Group was established in 1996 to co-ordinate the implementation of UK Actions Plans in Scotland (this group is now known as the Scottish Biodiversity Forum). Comprising of members from both statutory and non-statutory organisations, the forum produces publications giving a strategic overview of the status of biodiversity in Scotland and acts as the main liaison point for all individuals and groups with an interest in conservation.

In 2003 the Scottish Biodiversity Forum published the document *Towards a Strategy for Scotland's Biodiversity: Biodiversity Matters* which covers the aims of the Scottish Government for conservation action up to the period of 2030. The Strategy presents a vision, an aim and 5 objectives:

Vision

It's 2030: Scotland is recognised as a world leader in biodiversity conservation. Everyone is involved; everyone benefits. The nation is enriched.

Aim

To conserve biodiversity for the health, enjoyment and wellbeing of the people of Scotland now and in the future.

Objectives

Species & Habitats: To halt the loss of biodiversity and continue to reverse previous losses through targeted action for species and habitats.

People: To increase awareness, understanding and enjoyment of biodiversity, and engage many more people in conservation and enhancement.

Landscapes & Ecosystems: To restore and enhance biodiversity in all our urban, rural and marine environments through better planning, design and practice.

Integration & Co-ordination: To develop an effective management framework that ensures biodiversity is taken into account in all decision making.

Knowledge: To ensure that the best new and existing knowledge on biodiversity is available to all policy makers and practitioners.

Scottish Biodiversity Strategy

In 2004, the Scottish Biodiversity Forum published the Scottish Biodiversity Strategy *Scotland's Biodiversity: It's in Your Hands* which drew together Scotland's obligations from the Rio Summit and the UK Biodiversity Action Plan. A second set of plans has been developed that follow an ecosystem approach and is split into the following categories: Farmland and Lowland (including Urban), Marine, People and Communications, Science, Wetland and Woodland. Work will focus on the following issues overleaf:





Top level biodiversity pressures
(climate change, habitat fragmentation and invasive species)

Priority areas for scientific activity
(loss of genetic diversity, soil degradation and ecosystem process)

Mechanisms for delivery
(ecosystem approach, biodiversity duty and data knowledge)

The website http://www.scotland.gov.uk/library5/environment/sbip58-00.asp lists further information on the Scottish Biodiversity Strategy. For more information on the Scottish Biodiversity Forum, please refer to the website: http://www.biodiversityscotland.gov.uk/

Local Biodiversity Action Plans
On a local level, there has been a concerted effort by partnerships across Scotland to address the loss of biodiversity through the publication of Local Biodiversity Action Plans (LBAPs). These plans set out a series of actions for UK BAP flora and fauna known to be in decline, along with management prescriptions for local habitats.

The general structure of LBAPs are normally based on individual Habitat Action Plans (HAPs) and Species Action Plans (SAPs), that describe in some detail the following information:

- Known habitats or species thought to be threatened locally
- Their distribution (if known)
- A description of the threats they face and causes behind their decline
- A programme of positive management work

HAPs relate to broad conservation improvements that will generally favour a wide variety of species as well as the habitat itself, while SAPs target individual species deemed to be of particular importance, such as European or UK protected species.

To oversee the work of LBAPs in Scotland, Biodiversity Officers have been appointed to write and/or review plans, and to ensure the implementation of projects through the concerted action by lead partners, non-government conservation organisations (NGO's) and local volunteers.

The Local Biodiversity Action Plan process in Dunbartonshire
In 2005, East Dunbartonshire Council published its first Local Biodiversity Action Plan in which priority species and habitats in decline were identified through a clearly defined process:

1. The Biodiversity Partnership undertook a habitat and species audit of East Dunbartonshire
2. The UK BAP was analysed
3. The Scottish Biodiversity Strategy was analysed

From this work, a number of species and habitats were selected as local priorities for conservation. Twenty six Action Plans were written into the ED LBAP; 13 species and 13 habitat action plans plus 4 habitat statements (listed in Appendix 1). Within each action plan, information on the species or habitat, distribution in East Dunbartonshire, potential threats, and a series of environmental actions were shown.

In 2007, a joint Biodiversity Officer was appointed by East Dunbartonshire Council and West Dunbartonshire Council, with the support of funding from Scottish Natural Heritage. The main purpose of this appointment was to form the Dunbartonshire Biodiversity Partnership, write a Dunbartonshire Local Biodiversity Action Plan encompassing both East and West Dunbartonshire, and to co-ordinate the implementation of the actions identified.

The Dunbartonshire Biodiversity Partnership was officially formed in December 2007. Table 1 shows the current list of members of the partnership, which represents a wide range of organisations and individuals interested in biodiversity in Dunbartonshire. Membership is dynamic and new members are very welcome.

Section 1

Table 1: Members of the Dunbartonshire Biodiversity Partnership

Key members	*Abbrev.*
East Dunbartonshire Council	EDC
West Dunbartonshire Council	WDC
Central Scotland Forest Trust	CSFT
Forestry Commission Scotland	FCS
East Dunbartonshire & Mugdock Country Park Ranger Service	EDCRS
Royal Society for the Protection of Birds	RSPB
Scottish Environment Protection Agency	SEPA
Scottish Natural Heritage	SNH
Scottish Wildlife Trust	SWT
West Dunbartonshire Countryside Ranger Service	WDCRS
Associate members	
Botanical Society of the British Isles	BSBI
British Waterways	BW
British Trust for Conservation Volunteers (inc. BRISC)	BTCV
BULB Aspen Project	BULB
Butterfly Conservation	BC
Cadder Church Eco-congregation Group	CCEG
Clyde Amphibian & Reptile Group	CARG
Clyde River Foundation	CRF
Friends of Lenzie Moss	FLM
Friends of the River Kelvin	FORK
Glasgow Museums	GM
Glasgow & Clyde Valley Green Network	GCVGN
Lennoxtown Initiative	LI
Loch Lomond & the Trossachs National Park	LLTNP
Loch Lomond Fisheries Trust	LLFT
Lomond Bat Group	LBG
Marine Conservation Society	MCS
Scottish Golf Environment Group	SGEG
Scottish Government Rural Payments Inspectorate Directorate	SGRPID
Scottish Ornithological Club	SOC
Scottish Water	SW
Strathclyde Badger and Mammal Group	SBMG
Tannoch Loch Conservation Group	TLCG
Tarmac	TAR
Torrance Playpark and Greenspace Group	TPGG
The Environment Trust	ET
The Woodland Trust	WT

plus a number of interested members of the public/schools

It is also important to stress that a separate Biodiversity Action Plan has been written for the Loch Lomond & the Trossachs National Park area. For more information please refer to www.lochlomond-trossachs.org.

Aims and objectives of the Dunbartonshire LBAP (DLBAP)
After some consideration at the first meeting of the Partnership in December 2007, the broad aims of the DLBAP were confirmed as being the following:

- To conserve species and habitats in Dunbartonshire that are considered vulnerable or threatened on a local or national basis, and in turn to contribute to the conservation of our global biodiversity
- To promote awareness of our local natural resources
- To promote community engagement in, and ownership of, the practical conservation of our natural resources
- To promote sustainable and wise use of our natural resources

It was agreed that the most practical way to tackle declining habitat and species in Dunbartonshire would be to implement actions at the habitat or ecosystem level, with additional attention paid to indicator species of habitat type. In essence, this habitat-based approach should work to benefit species in combination, whereas actions targeted at one species can conflict with the conservation of others.

A list of priority action areas, including additional flagship species (that is, popular and attractive species that can easily be identified and promoted to schools and the general public) is shown in Table 2.

Table 2: Dunbartonshire LBAP Habitat Groups and Flagship species

Priority Habitat Groups

Urban
Rural
Woodland
Wetland *(including Coastal)*

Flagship Species

Plants
- Bog Rosemary
- Lesser Butterfly Orchid
- Round-leaved Sundew
- Bluebell

Insects
- Bumblebee/Honeybee
- Common Blue
- Green Hairstreak
- Small Pearl-bordered Fritillary

Fish
- Atlantic Salmon
- Brown Trout

Mammals
- Badger
- Bat
- Otter
- Water Vole

Birds
- Barn Owl
- Black Grouse
- Curlew
- Kingfisher
- Lapwing
- Linnet
- Redshank
- Reed Bunting
- Skylark
- Snipe
- Tree Sparrow
- Yellowhammer

Amphibians
- Great Crested Newt

A more detailed list of associated species and habitats can be found in each of the separate Priority Habitat Groups in Section 3.

Section 1

Policy Context

The key policy drivers offering opportunities for biodiversity in Dunbartonshire are listed below:

International Policies relevant to the DLBAP

- The Convention on Biological Diversity, Rio de Janeiro, 1992
- Kyoto Protocol on Climate Change 1997
- EU Air Quality Framework Directive
- Water Framework Directive
- EC Directive Conservation of Natural Habitats of Wild Fauna and Flora (1992) - The Habitats Directive
- EC Directive Conservation of Wild Birds (1979) - The Birds Directive

National and Local Policies relevant to the DLBAP

- The Scottish Biodiversity Strategy (2004), which guides and fosters community involvement and ownership in their natural environment in a sustainable manner.

- Council policies such as the Local Plan, Corporate Plan and Sustainable Development Strategy of both East Dunbartonshire Council and West Dunbartonshire Council in which the Councils state that they will protect landscape features and wildlife habitats that contribute to biodiversity. The East Dunbartonshire Greenspace Strategy recognises that Greenspace is an essential element of liveable towns and cities and serves to enhance and support the ecology and biodiversity of the built environment, while at the same time enabling healthy living and fostering local pride and community cohesion.

- The Water Environment Water Services (Scotland) Act 2003 which is an Act of the Scottish Parliament to make provision for protection of the water environment. An important aspect of this Act is the provision for River Basin Management Planning.

- Scottish Rural Development Programme which provides a framework and opportunities for funding to encourage landowners and land managers to carry out habitat enhancement activities.

- The Scottish Forestry Strategy which recognises the importance of protecting, managing and enhancing the rich and varied range of woodland habitats and species. Appendix 2 lists the main aims of the Strategy.

- The Glasgow and Clyde Valley Structure Plan which aims to protect the environmental inheritance of the area and promote major improvements in the quality of the natural environment.

- The National Planning Policy Guidelines (NPPG) written in order to give guidance on how the Government's policies for the conservation and enhancement of Scotland's natural heritage should be reflected in land use planning. NPPG 14 Scottish National Planning Policy Guidelines - Natural Heritage indicates how biodiversity can either be conserved or enhanced in the planning process. In April 2009 the Scottish Government published the consultative draft 'Scottish Planning Policy', the adoption of which will eventually supersede the aforementioned guidelines.

Since 1949, the UK Government has developed a series of statutory measures to help protect our natural heritage, through planning and conservation legislation. The main elements of the framework are shown in Appendix 3. In one of the most recent pieces of legislation, The Nature Conservation (Scotland) Act 2004, there is provision for all public bodies to meet their new obligations to further the conservation of biodiversity. In this Act it is clearly stated that:

"it is the duty of every public body and office-holder, in exercising any functions, to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions."





Other key pieces of key legislation include:

- Wildlife & Countryside Act (1981, as amended), which is the principle mechanism for the legislative protection of wildlife in Great Britain and is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (the 'Bern Convention') and the European Union Directives on the Conservation of Wild Birds (79/409/EEC) and Natural Habitats and Wild Fauna and Flora (92/43/FFC) are implemented in Great Britain.

- Protection of Badgers Act (1992, as amended) which provides protection for badgers and their setts.

Local Plans

The East Dunbartonshire Local Plan was adopted in February 2005, while West Dunbartonshire's was finalised as a draft in August 2007. Both Councils have pledged to maintain and enhance the natural and built environment through the conservation of environmental resources. The promotion and support of improvements to environmental quality is therefore one of the key drivers behind the success of this LBAP. Appendix 4 lists the Local Plan policies of relevance to biodiversity in East and West Dunbartonshire. Both plans are reviewed on a regular basis, with new revisions due for adoption in 2010.

Clearly though this pledge has to be converted into direct action and delivery on the ground through the formation of a strong partnership between developers, Planning and members of the Dunbartonshire Biodiversity Partnership. Provision must be placed on protecting UK BAP habitats and species with 'no net-loss' of habitat targets achieved through development and building control.

Strategic Environmental Assessment

During the production of this Biodiversity Action Plan, a Strategic Environmental Assessment (SEA) was carried out. SEA is a statutory requirement under the Environmental Assessment (Scotland) Act 2005. It is designed to ensure that any plans, programmes or strategies produced by a local authority (or similar body) are assessed to gauge their potential impact upon the environment – and to ensure mitigation measures are put in place to combat any negative environmental effects. Following public and statutory consultation, the DLBAP was deemed to have a wholly positive impact on the environment.

Section 1

Implementation

Funding

Implementation of the LBAP projects will be prioritised by assessing the conservation 'need' of projects along with the funding sources available and availability of groups able to work on their implementation.

The Scottish Rural Development Programme

From 2008, the main stream of funding for environmental enhancements and management will be through Scottish Rural Development Contracts that form part of the Scottish Rural Development Programme (SRDP). This scheme has adopted an integrated approach to fund environmental, social and economic actions in Scotland, and aims to delivery strategic objectives of the Scottish Government through Regional Priorities. Both East and West Dunbartonshire fall within the Clyde Valley SRDP region. The scheme is competitive and will be awarded to projects that fit most closely to the priorities outlined for each area. Larger, cross-boundary proposals are likely to be more successful, and so landowners and managers are being encouraged to form partnerships to develop mutual applications. Table 3 highlights the Clyde region priorities for biodiversity.

Table 3: Biodiversity priorities for the Clyde Valley region

Biodiversity priorities – Clyde Valley

"A halt in the loss of biodiversity and reverse previous losses through targeted action" (a Scottish Biodiversity Strategy objective) through management that restores, conserves or enhances Biodiversity Action Plan (BAP) species and habitats, with an initial emphasis on management which will deliver by 2010. For example: through maintenance and enhancement of ancient, long established and semi-natural woodlands, restoration of Plantations on Ancient Woodland Sites (PAWS), particularly where ancient plant communities are most at risk; organic conversion or organic maintenance; and, actions in Local Biodiversity Action Plans. Particularly proposals that:

- support implementation of actions arising from National BAPs
- manage grazing and browsing pressure from wild and domestic animals to allow the restoration of habitats and to maximise biodiversity benefits, e.g. for wood pasture and parkland

The special features on Scotland's nationally important nature sites (SSSIs, SACs, SPAs and Ramsar sites) being in 'favourable condition' (95% by 2010). Particularly proposals that:

- bring the special features of designated sites into favourable condition or moving towards favourable condition
- ensure the protection and active management of designated sites
- involve collaboration across areas of deer range to help maintain sustainable wild deer populations at a level compatible with natural heritage, landscape and access interests in order to ensure the special features of nature sites move towards 'favourable condition'

Viable populations of rare and/or endangered species, through improved conservation of the 32 species listed for priority action in the Species Action Framework for Scotland, and through targeted action identified in priority Species Action Plans. Particularly proposals that:

- support the conservation of the following key species in the Clyde Valley Region - Capercaillie, Black Grouse, Great Crested Newt, Red Squirrel, Water Vole, Otter, Woolly Willow, Lesser Butterfly Orchid, Pearl Bordered Fritillary, Willow Tit and Freshwater Pearl Mussel





Table 3: Biodiversity priorities for the Clyde Valley region continued.

Reduced threat from non-native species, through action to eradicate or control target species, e.g. Grey Squirrel, Rhododendron, and particularly those listed in the Non-Native Species Framework Strategy for GB. Particularly proposals that:

- remove and/or control the following invasive non-native species *Rhododendron ponticum,* Japanese Knotweed, Giant Hogweed and Himalayan Balsam
- control Grey Squirrel through measures which support Red Squirrel recovery in line with the Scottish Red Squirrel Action Plan 2006-2011

Increase in the area of connected natural habitats and ecological features, through collaboration between land managers to adopt a landscape scale, whole ecosystem approach to helping biodiversity, particularly where the threat from climate change is most acute, or, offering desirable species the opportunity to increase their range by taking advantage of changing climatic factors. For example, by expanding the area of native woodland in preferred locations, organic conversion or organic maintenance. Particularly proposals that:

- create and/or enhance habitat networks to ensure ecological connectivity, particularly proposals that will deliver the Clyde Valley Integrated Habitat Network and forest habitat networks
- manage wetlands and wet grasslands, including floodplains, that support breeding waders
- contribute to woodland expansion and sustainable management consistent with the Glasgow and Clyde Valley Habitat Network, Glasgow & Clyde Valley Green Network, the GCV Forestry and Woodland Framework and the Central Scotland Forest Strategy
- improve management of habitats along transport corridors
- help deliver the Clyde River Management Plan via collaborative cross-unit management of priority riverine habitats
- proposals for the management of upland heather moorland and blanket bog which is important for nesting raptors and breeding waders

For further information on the regional priorities and their packages, along with eligibility and how to apply, visit www.scotland.gov.uk/Topics/Rural/SRDP.

There will also be a limited amount of money available to members of the Dunbartonshire Biodiversity Partnership to help carry out LBAP projects in East Dunbartonshire. Appendix 5 describes this grant in more detail.

Examples of strategic work in Dunbartonshire

Local Nature Conservation Site review

Nationally designated sites such as Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) protect only a limited part of the area's biodiversity and there is a wide range of non-statutory local and regionally important sites.

East and West Dunbartonshire Councils, with the aid of Scottish Natural Heritage, have undertaken work to evaluate the above resources under the new definition of Local Nature Conservation Sites (LNCS). The LNCS network will include wildlife corridors and sites previously referred to as 'Sites of Importance to Nature Conservation' (SINCs). As well as providing baseline information on the species found in Dunbartonshire, the survey data will enable the two Councils to explore the potential of enhancing the quality and quantity of their wildlife corridors to link up fragmented areas, particularly those of ecological value.

Section 1

Glasgow & Clyde Valley Green Network

Both East and West Dunbartonshire Councils are members of the Glasgow and Clyde Valley Green Network together with six other local authorities that comprise the Glasgow metropolitan region. The partnership also includes five major government agencies that promote and deliver on the environmental, social, health and economic agendas throughout the GCV area, namely Communities Scotland, Scottish Enterprise, Glasgow Centre for Population Health, Forestry Commission Scotland and Scottish Natural Heritage.

The aim of the partnership is to create a step change in the scale and quality of the Green Network to improve the region's competitiveness for investment, increase quality of life, encourage healthy lifestyles, promote biodiversity and more sustainable use of natural resources.

Two exciting projects for Dunbartonshire have resulted from the GCV Green partnership:

Clyde River Biodiversity project and Integrated Habitat Network project.

Clyde River Biodiversity Project

Industrialisation of the River Clyde and its subsequent decline has resulted in a legacy of degraded and fragmented habitats along and adjacent to the river. Recent regeneration of riverside land has sought to reverse the dereliction and return the river to being a valuable resource for those who live, work and visit West Dunbartonshire. Although new development has, to varying degrees, taken cognisance of the recreational and landscape potential of the Clyde corridor, and included provision for their enhancement, opportunities for improving biodiversity appear to have been given less consideration. The linear geographical scope of the study along the Clyde corridor includes the area from Clydebank to the Erskine Bridge in West Dunbartonshire.

A feasibility study was carried out in 2008 to identify opportunities to reverse fragmentation through the protection and restoration of existing biodiversity sites and, where feasible, the creation of new habitat. From this study, the Duntocher Burn (including the wildlife corridor that extends into Auchentoshan Woods), and the dismantled railway line adjacent to the Burn were identified as requiring particular attention for habitat enhancement work. A major river restoration programme was recommended involving de-culverting, soft engineering works, riparian planting and eradication of invasive species such as Japanese Knotweed and Himalayan Balsam. Such recommendations will be incorporated into costed action plans and used to attract external funding in 2010/2011.

Integrated Habitat Networks

The concept of Integrated Habitat Networks has developed over recent years, providing an ecological basis for creating links between areas of habitat interest to conservation, reducing habitat fragmentation and allowing the movement of species through a highly modified landscape. The Glasgow & Clyde Valley Green Network Partnership commissioned a GCV-wide Integrated Habitat Network modelling project where habitats were assessed in terms of functional connectivity, relationship to designated sites, balancing priorities/resolving conflicts, planning issues and potential for targeting of agri-environmental incentives. Key areas of semi-native woodland, grassland and wetland were identified for restoration and expansion.

The results of the Integrated Habitat Network project, along with information derived from the LNCS review in East and West Dunbartonshire will help both Councils to prioritise areas where biodiversity enhancements can be made through the Scottish Rural Development Programme.

Both provide exciting, focused ways in which targeted action on the ground can be achieved over a relatively large scale in a short period of time.

Linking the Local Biodiversity Action Plan to Council departments

Biodiversity can easily be fitted within the work programmes of a variety of Council departments. Table 4 shows examples of how this can be achieved, at little/no-cost or savings to departmental budgets.





Table 4: How Council departments in East and West Dunbartonshire can potentially contribute to the Dunbartonshire Local Biodiversity Action Plan

Roles	Potential Activities
Chief Executive	• secure broad base support for the LBAP • ensure that the LBAP is placed at the core of Planning policy and enforcement • ensure that departments are "joined up" in terms of an integrated approach to Biodiversity/Greenspace Strategies
Partnership & Planning Service	• incorporate the LBAP into Local and Structure Plans • help involve local people to become engaged in the management of urban woods, wildlife corridors and LNCS sites • promote woodland expansion and management through Development Advice Notes, site briefs and Standards • capture better habitat and infrastructure linkage through an informed network-based planning approach (Integrated Habitat Networks, Glasgow & Clyde Valley Green Network) • use planning requirements and conditions to enhance biodiversity through practices such as implementing environmentally sustainable drainage schemes such as ponds, swales and retention basins (rather than hard engineered underground solutions), de-culverting and naturalisation of watercourses and green roofs
Greenspace Service (EDC)/ Forward Planning & Regeneration (WDC)	• promote the importance of conservation site resource to other departments • aim to implement habitat restoration and woodland management projects to help meet LBAP aims • ensure linkage between the LBAP with other strategies relating to the environment • ensure resources for and then implementation of Management Plans for Council owned sites • use Rangers to help deliver wildlife awareness events • help identify key people in the community and the best ways to encourage community engagement and participation • link wildlife sites with development of core footpath network and complementary signage strategy • assist in the provision of Environmental Education through events, leaflets, public art and good practice examples • consider either tree/scrub cover or meadow-mowing as an alternative to amenity grass cutting
Development Control Service	• ensure conservation sites and protected species are fully taken into account in planning applications and conditions for new settlements, development and renewal areas, including protection and appropriate mitigation measures
Landscape Architects	• aim to use native species to expand woodland wildlife corridors and link sites of interest to nature conservation; consider enhanced riparian planting in developments near watercourses • aim to use locally sourced timber and flowers/shrubs for landscaping contracts
Roads Network Service	• ensure sensitive management of verges and trees and implementation of appropriate survey and maintenance • incorporate new planting into existing and new roadside verges and hedges • reduce amount of hedgerow cutting (where it is safe to do so) • develop sustainable transport projects using urban woodland as part of footpath/cycle network
Education Service	• increase tree and woodland cover in school grounds for educational purposes, along with wildlife gardens and wildflower meadows • involve schools in outdoor classroom projects e.g. Forest Schools

Section 1

Biodiversity and development

With the need for increased housing, developmental pressures can have profound impacts on biodiversity, as well as presenting positive opportunities. It is therefore increasingly important to ensure that developers show environmental awareness when developing sites, for example by adhering to UK and EU legislation for protected species, and carrying out relevant wildlife surveys at the correct time of year. Employing appropriate mitigation when a development is found to impact on biodiversity can prove vital for a number of species. Figure 1 shows the potential positive and negative effects on biodiversity that can occur with development (taken and modified from the publication *Guidance for Public Authorities on Implementing the Biodiversity Duty,* published by DEFRA, 2007).

Figure 1: Potential effects of development on biodiversity

Examples of Potential effects of Development on Biodiversity

It is crucial that biodiversity and geological conservation are considered at every stage of the planning and building process, as careful practice and due diligence to wildlife and nature conservation will help sustain our species and natural landscapes. It is important to have close co-operation between public bodies, private enterprises, local communities and conservation groups. Development can often be compatible with conservation, and if carefully planned, potential for conflict can be reduced considerably. Although never substituting for an area of long-standing naturalness, opportunities such as land rehabilitation, landscaping and creation of new habitats, or the linking up of fragmented sites can be remarkably successful.





The following has been written to help anyone who is involved in the planning process: that is, planners, developers and local residents affected by a planning application or building development.

Planning departments can help protect locally declining species and habitats as identified in LBAPs through adoption of the main Local Plan policies (please refer to Appendices 3 and 4), and by disallowing planning applications that will increase habitat fragmentation, or are detrimental to designated sites of nature conservation (SSSIs, LNRs and LNCSs). Key features such as woodlands, waterbodies and semi-natural grasslands should be protected.

A key opportunity for Planning Officers would be to encourage biodiversity gain early in the pre-application process. In doing so, developers will be able to show good green credentials, ensure correct procedures as to UK and EU legislation requirements, reduce chances of delay/associated increased project costs as well as unnecessary disturbance to wildlife and habitats.

Environmental Assessment

When it is expected that the proposal will have significant effects on biodiversity, or if the site is located on or near to a locally important wildlife site, the developer should carry out appropriate ecological surveys to identify any loss of diversity/habitats in order to incorporate appropriate mitigation or to write a management plan. It is important that surveys are carried out at the optimum times of year to gather the highest quality of information about species or their habitats. Advice should be sought from SNH or the Council's Biodiversity Officer if there is any doubt about the potential effects of the project on the natural environment.

Table 5 lists the species affected by a number of developments in Dunbartonshire, while Table 6 shows the best times of year to carry out relevant surveys. Surveys must be carried out by a competent contractor with several years' experience not only in protected species surveying but also in devising appropriate mitigation. New Planning Policy requires developers to conduct such surveys before planning permission is given.

It is extremely important that Planning authorities, developers and local residents take into account the effects of a development on UK and European protected species such as Badger, wild and nesting birds, Water Vole, Bat*, Otter* and Great Crested Newt* (*European protected species). If protected species are not taken into account and mitigation is not put in place, any actions resulting in the harm of those species (or their habitats, if protected) will contravene the Wildlife & Countryside Act 1981, Nature Conservation (Scotland) Act 2004, Protection of Badgers Act 1992 and/or European Directives. Under the Conservation (Natural Habitat) Regulations 1994 *the onus is placed on builders and contractors to undertake a survey before any work is carried out (whether site preparation, demolition and/or construction).*

Non-protected species or habitats

It is extremely important that habitat fragmentation, which has resulted from many centuries of exploitation by man, is reversed as much as possible. The establishment of wildlife corridors (or enhancing the quality of existing strips of land or waterbodies) should be considered as high priority in the planning process. It is imperative that no further fragmentation of the land should occur, unless measures are put in place that will help to compensate for any loss of land. Features of particular significance to habitat networks are:

Section 1

Woodland

Individual trees of note (that is, mature trees that represent a historical or ecological interest to the local area), or groups of trees that have value to wildlife or serve as an attractive feature of the landscape should be conserved. New developments should take into account native species in their landscaping designs, and local residents should be encouraged to retain hedgerows or to plant native hedges, instead of using fences to delineate boundaries. Hedgerows, as well as man-made structures such as dykes, provide ideal shelter belts for species, and are linear features that allow the safe movement of species across the landscape. Under Section 159 of the Town and Country Planning (Scotland) Act 1997 Planning Authorities have a duty to ensure that, whenever appropriate, planning permissions make adequate provision for the preservation or planting of trees. Where development involves the loss of trees, permission should normally be conditional on a replanting scheme with trees of appropriate species in appropriate numbers. Section 160 of the 1997 Act makes provision for authorities to safeguard trees or woodlands by means of Tree Preservation Orders (TPOs) where this appears expedient in the interests of amenity. TPOs can provide an effective way of protecting isolated trees, copses or groups of trees associated with buildings.

Watercourses

Lochs, ponds, burns and rivers are valuable landscape features and important wildlife habitats. Planning authorities should therefore seek to safeguard their natural heritage value within the context of River Basin Management Planning. Appropriate planting up of Sustainable Drainage Systems is an excellent way of enhancing biodiversity in any site. Developers should be encouraged to incorporate existing ponds, watercourses or wetlands as positive environmental features in development schemes, and to identify suitable opportunities for creating new water or wetland features. They should be encouraged to seek alternatives to extensive culverting or canalisation, as these greatly reduce the ecological and amenity value of watercourses, and can lead to an increased risk of flooding. Opportunities should be taken to restore the naturalness of existing culverted or canalised watercourses in re-development and land rehabilitation schemes through planning conditions.

Culverting of rivers and streams

What are culverts?

A culvert is generally an arched structure that encloses a stream, and is normally linked to building and road development in areas through which watercourses flow. In the past, culverting of rivers and streams was a long-standing practice in urban expansion, however such gain of land came at the expense of habitats and species. As rivers and streams are important routes for migration and dispersal of species such as Salmon, Otter, Water Vole and many plants and insects, culverting often stops free movement which can lead to isolation of populations and in some cases, decline and loss of groups, as well as increasing flood risk through the blocking of culverts by debris. This unnecessary loss of aquatic and riverbank habitat is therefore against the aims of sustainability and should be avoided as much as possible.

According to the NPPG 14, watercourses are “valuable landscape features and wildlife habitats” for which Local Authorities should “seek to safeguard their natural heritage value”. Discouraging the use of culverts in planning applications should therefore be made a priority, in addition to removing and restoring watercourses that have been culverted in the past.





Conditions and Agreements

In many cases, the Planning Authority will include planning conditions that will help to mitigate the impact of the development on the natural heritage, or to incorporate on/off - site mitigation that will bring positive, environmental benefits. For instance, appropriate action such as erection of bird/bat boxes, improving the quality of remaining hedgerows/ woodland, restricting construction to certain times of the year, installing appropriate lighting that will not disrupt nocturnal animals or migration of fish, planting of Sustainable Drainage Systems for biodiversity, removal of culverts and securing appropriate landscaping for biodiversity are placed as conditions. Planning agreements (section 75) can often secure funding that will help fund the preparation and implementation of management plans or site BAPs along with their long-term monitoring and restoration.

Sustainable Drainage Systems (SUDS)

Surface water drainage from developed areas is increasingly affecting our river/loch water quality. As development intensifies, with less permeable surfaces, faster surface water run-off and reduced natural soil filtration, sealing of the ground leads to localised flooding and pollution incidents. With implications of climate change we need to adopt the Sustainable Drainage System approach to drainage to retain, slow and store surface water and prevent pollution.

Sustainable Drainage Systems aim to mimic the natural movement of water from a development, reducing flood risk, improving water quality and often providing attractive features. They present a flexible set of options that allow a designer to choose the most suitable combination of techniques appropriate to a particular site, for example ponds, retention basins, swales, infiltration trenches, filter strips, constructed wetlands and green roofs. The design, construction and maintenance of such systems need to be considered on a site-by-site basis, taking account of best practice design, and involving relevant stakeholders – planners, developers, SEPA, Local Authority grounds maintenance teams and Scottish Water.

The implementation of the above environmentally friendly sustainable schemes in place of hard engineered underground solutions will therefore be made more of a priority in planning requirements and conditions.

Legislation

In Scotland, as part of the enabling legislation relating to the Water Framework Directive, the term ‘sewer’ was redefined to include SUDS components. Through this, Scottish Water was made responsible for the future maintenance and capital replacement of shared public SUDS through the enactment of Stage 3 of the Water Environment and Water Services (Scotland) Act 2003.

What this means in practice

This means that SUDS can now vest in Scottish Water just like any other part of the sewerage system, however Scottish Water will not take responsibility for the SUDS unless they meet the requirements as set out in the Sewers For Scotland, 2nd edition manual. It is therefore very important for developers to be aware of this at the planning stage of any SUDS development if they wish the system to vest with Scottish Water when completed.

Other issues of concern: Invasive Species

Non-native species have become an increasing feature of the landscape. Brought into the UK by man for a number of reasons, a small proportion of non-natives have flourished and are now negatively impacting on local biodiversity, through out-competition in growth or foraging, disease or widespread predation. It is important that developers and residents take note that inappropriate handling of some invasive species on development sites may contravene UK legislation.

Examples of non-native species in Dunbartonshire

Japanese Knotweed
Giant Hogweed
Himalayan Balsam
Skunk Cabbage
Rhododendron
American Mink
Grey Squirrel

Section 1

Becoming an ever-increasing problem, both Japanese Knotweed and Giant Hogweed are invasive species listed in the Wildlife & Countryside Act 1981 (as amended). This means that it is an offence to cause the spread of these two species, often occurring for example, through inappropriate manual handling or use of tracked machinery on infested soil. As both species are classified as controlled waste, specific measures must be taken to eradicate stands and transfer any waste off-site. Eradication is never guaranteed, and often takes many years of spraying, if successful at all.

For Japanese Knotweed it is important that planners and developers follow and enforce the SEPA guidance note:

www.sepa.org.uk/pdf/guidance/waste/Japanese_Knotweed1.4.pdf

The publication *Giant Hogweed Management in the United Kingdom* (published by the RPS Group plc and Environment Agency, ISBN 978-0-906269-04-6) gives management advice for Giant Hogweed.

It is vital that developers and land managers adhere to the advice given in the aforementioned publications in order to ensure the species are dealt with in the most appropriate manner, and to avoid criminal prosecution. It should also be noted that any residents who are aware of any activities that may contravene the above legislation should immediately get in touch with the Scottish Environment Protection Agency (www.sepa.org.uk).

Table 5: Development proposals and recommended surveys (adapted from *Validation of Planning Applications: Template for Biodiversity and Geological Conservation,* published by the Association of Local Government Ecologists, June 2007)

Proposals for development that should trigger a protected species survey	Plants	Amphibians	Reptiles	Badger	Water Vole	Otter	Gt. Crest. Newt	Breeding Birds	Barn Owl	Bat	Species potentially affected and for which a survey will be required
Proposed development which includes the modification, conversion, demolition or removal of buildings and structures (especially roof voids) involving the following:											
(i) All agricultural buildings (e.g. farmhouses and barns) particularly of traditional brick or stone construction and/or with exposed wooden beams greater than 20cm thick;								✓	✓	✓	
(ii) All buildings with weather boarding and/or hanging tiles that are within 200m of woodland and/or water;										✓	
(iii) Pre-1960 detached buildings and structures within 200m of woodland and/or water;										✓	
(iv) Pre-1914 buildings within 400m of woodland and/or water;										✓	
(v) Pre-1914 buildings with gable ends or slate roofs, regardless of location;										✓	
(vi) All tunnels, mines, kilns, ice-houses, adits, military fortifications, air raid shelters, cellars and similar underground ducts and structures;										✓	
(vii) All bridge structures, aqueducts and viaducts (especially over water and wet ground)										✓	
Proposals involving lighting of churches and listed buildings or flood lighting of greenspace within 50m of woodland, water, field hedgerows or lines of trees with connectivity to woodland or water										✓	
Proposals affecting woodland, or field hedgerows and/or lines of trees with obvious connectivity to woodland or water bodies				✓				✓	✓	✓	
Proposed tree work (felling or lopping) and/or development affecting:				✓				✓	✓	✓	
(i) Old and veteran trees that are older than 100 years;								✓		✓	
(ii) Trees with obvious holes, cracks or cavities;								✓		✓	
(iii) Trees with a girth greater than 1m at chest height								✓		✓	
Proposals affecting gravel pits/quarries/cliff faces/rock outcrops with crevices, caves or swallets			✓					✓		✓	
Major proposals within 500m of a pond or Minor proposals within 100m of a pond		✓		✓			✓			✓	
Proposals affecting or within 200m of rivers, streams, canals, lakes, or other aquatic habitats	✓	✓			✓	✓	✓	✓		✓	
Proposals affecting ‘derelict’ land (brownfield sites), allotments and railway land		✓	✓	✓			✓	✓		✓	
Proposed development affecting any buildings, structures, feature or locations where protected species are known to be present	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Section 1

		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Badger													
Bat & bat roosts	Hibernation Roosts												
	Summer Roosts												
	Foraging/Commuting												
Birds	Breeding												
	Over wintering												
Gt Crested Newt	Terrestrial												
	Aquatic												
Invertebrates													
Otter													
Reptiles													
Water Vole													
Signal Crayfish*													
Habitat/Vegetation													

Optimal Survey Time

Sub-optimal Surveying Time – presence may be detected but results may be too ambiguous to allow mitigation to be devised

*As at February 2010 not recorded in Dunbartonshire

Community issues - Biodiversity and Communities

Community involvement

Although the implementation of the main actions/projects listed in the Habitat Action Plans in Section 3 will be carried out in the main by landowners and land managers along with conservation stakeholder groups, the success of this LBAP will also rely on the support of local residents. At present there are a number of very supportive groups in Dunbartonshire, and their dedication is very much appreciated by the Partnership members.

Examples of Greenspace community groups or initiatives in Dunbartonshire

East Dunbartonshire

- Boghead Wood Group
- Cadder Church Eco-congregation
- Cairnhill Woods Group
- Friends of Lenzie Moss
- Kilmardinny PALS
- King George V Park Greenspace Group
- Kirkintilloch Skate Initiative
- Mains Estate Residents Association
- Merkland Local Nature Reserve Management Group
- Tannoch Loch Conservation Group
- Torrance Playpark and Greenspace Group
- Twechar Regeneration
- Whitefield Pond Group
- Woodhead Park Action Group
- Woodhill Residents Group

West Dunbartonshire

- Castlehill and Westcliff Action Group
- Choices Programme, Sky Point Centre
- Clydebank History Society
- Clydebank Housing Association
- Clydebank Re-built
- Clydebelt
- Community Links
- Dalmuir Park Housing Association
- Drumry Tenants and Residents Association
- Enviro Squad
- Faifley Knowes Residents Association
- Friends of Auchentoshan Wood
- Friends of The Saltings
- Greenlight Environmental
- Knowes Housing Association
- Knowetop Community Farm
- Paths for all Partnership
- Rosshead Tenants and Residents Association
- Tullochan Trust
- 50+ Club

plus local schools,
local artists & craft artisans

Education and Schools

The involvement of schools is also essential for sustaining interest in wildlife issues, and the incorporation of biodiversity into the Curriculum for Excellence encourages wildlife surveying and appreciation of nature from an early age. Progression to Eco-school status, working towards John Muir awards and delivering Forest School projects all help to integrate learning with recreational activity.

Section

Wildlife records

In order to be able to conserve the wildlife of Dunbartonshire, it is important to know what species we have, where they are, and how common or endangered they are. This information forms the basis of a biological audit for the area, and helps to direct effort and limited resources to where they are needed.

Although some popular groups, such as birds, butterflies and flowering plants are well-recorded, many others (especially invertebrates and lower plants) are extremely under-recorded for the area. Further records of all species are required to build up as complete a picture as possible of the fauna and flora of the local authority areas.

Biological records for Dunbartonshire are held by Glasgow Museums Biological Records Centre, based at Nitshill in Glasgow. Anyone holding their own records is encouraged to pass these on, so that they can be used for environmental decision-making, education, research, and other public benefit uses.

Records can be sent to:

Glasgow Museums Biological Records Centre
Glasgow Museums Resource Centre
200 Woodhead Road
South Nitshill Industrial Estate
Glasgow,
G53 7NN

Phone: **0141 276 9330**
Fax: **0141 276 9305**
E-mail: **biological.records@glasgowlife.org.uk**
Web: **www.glasgowlife.org.uk**

Wildlife Crime

Snaring

Although not illegal in Scotland, snaring can only take place on sites where there has been permission granted by the landowner. As this practice is strictly not condoned by East and West Dunbartonshire Councils, we would recommend local residents immediately contact the Police if they observe snaring activities on Council owned property.

Other illegal activities that should be reported are: badger baiting, hare coursing, digging up of wildflowers/bulbs without permission and inappropriate handling of non-native invasive species such as Japanese Knotweed and Giant Hogweed. If dead birds of prey are found the location should be noted and details (along with any photographs) should be sent to either the Countryside Ranger Service or Wildlife Crime Unit (for more information see below).

If you are a witness to a crime against nature

Under no circumstances should you approach those committing offences directly - immediately contact Strathclyde Police and give details of what you have seen along with a description of your exact location. To help in the prosecution of such individuals, please do not disturb any potential evidence found at the crime scene, and if possible supply photographic and/or video evidence. For more information on wildlife crime, contact Joe Connelly, Strathclyde Police Wildlife Crime Officer Co-ordinator, telephone: 0141 532 6481





Habitat Description of East Dunbartonshire

East Dunbartonshire is found to the north of the City of Glasgow and is bounded by the Campsie Fells and the Kilpatrick Hills. Covering an area of 66.3 square miles, three-quarters of East Dunbartonshire is classified as being agricultural. The population of East Dunbartonshire currently stands at around 110,000. The local authority area contains a number of key towns such as Bearsden, Milngavie, Bishopbriggs, Kirkintilloch and Lenzie along with the villages Twechar, Milton of Campsie, Lennoxtown, Torrance and Balmore.

The natural landscape of East Dunbartonshire is composed of a rich mix of upland, peatland, wetland and grassland areas with a modest number of woodland sites. Rolling farmlands are found around Bishopbriggs that extend eastwards and south and east of Kirkintilloch to Twechar, while lowland areas run through the valleys of the Glazert, Lower Allander and Kelvin. Rugged moorland hills are represented by the distinctive Campsie Fells and Kilpatrick Hills with the former designated in 1981 and then again in 1995 as an area of Regional Scenic Importance.

A substantial amount of land in East Dunbartonshire is represented by large swathes of open agricultural areas, used primarily for grazing livestock and cereal production. Although such sites can often be heavily managed there are ample opportunities for landowners and managers to improve biodiversity on their land through habitat enhancement projects (such as hedgerow management, woodland shelter belts, watercourse development and planting of buffer strips for wildlife).

Watercourses

The area is well known for its series of lochs, marshes and floodplain areas that are often associated with the main watercourses running through the area, namely the Rivers Kelvin and Allander, Glazert Water, Luggie Water, Bothlin Burn, Pow Burn and the Forth & Clyde Canal. Such areas are very important wildlife corridors and are of prime importance for waders and wildfowl. Local Nature Conservation Sites include Antermony Loch, Mugdock Reservoir, Bardowie Loch, Balmore Haughs, Hayston Oxbows, Springfield Marsh, Broomhill, Fin Glen, Millersneuk, Waterside & Barbeth Flood Pools and Twechar Marsh. Dougalston, Tannoch, Kilmardinny and St. Germains lochs have some floral interest, and given their urban setting are regularly used for recreation.

Woodland

Generally woodland habitat is poorly represented, but significant areas of broad-leaved woodland and/or conifer plantations can be found at Cadder Wilderness SSSI, Bar Hill, Cawder Golf Course Woods and Lennox Forest. Ancient and semi-natural woodland of note are represented at Mugdock Wood and Woodilee Woods along with small remnants found along Fin Glen and Campsie Glen. Extensive deciduous woodland can also be found near Mugdock Reservoir, in particular Mugdock Wood SSSI and the southern woodland along Baldernock Road. The former is a relatively large undisturbed ancient deciduous woodland. Here a number of woodland habitats are represented, ranging from dry acidic oakwood to wet alderwood. The plant communities at Mugdock Wood are fairly distinct, with a number of locally rare vascular plants that support a rare invertebrate assemblage. Some areas edging the River Kelvin around Killermont Golf Course, along with parts of the woods at Auldmurroch Burn and along the Glazert and Allander Waters (near Milngavie Golf Club House and Dougalston) are shown on maps as woodland from 1750 onwards. Mains Plantation has an extensive and diverse ground flora and scrub layer, and holds modest areas of Oak and Birch woodland. In the gorges and valleys of East Dunbartonshire, Alder, Willow, Holly, Birch and some Elm are commonly found. Upland areas support a number of small areas of native woodland, while commercial conifer plantations can often dominate.

The great mansion plantings of the 18th Century has added character to many areas such as Dougalston, Killermont, Kilmardinny, Lennox Castle, Kincaid, Glorat, Gartshore, Cadder estates, Woodilee Hospital, Shoenstatt at Haughhead, and much of Milngavie. Urban woodland sites such as Templehill Woods, Merkland Local Nature Reserve and Cairnhill Woods also hold a great variety of woodland species and offer a high quality recreational resource. Unfortunately, Rhododendron planted extensively in Policy woodlands and other alien species such as Japanese Knotweed and Himalayan Balsam, have grown to such an extent that they now dominate the shrub layer in many woodlands, thus suppressing the growth of native ground flora.

Section 2

Upland Areas
The Campsie Fells and Kilpatrick Hills, comprised mainly of rough grazing for sheep with sections of conifer plantation, form a spectacular feature of the countryside. Native broadleaf woodland can be found in small patches in the foothills or confined to narrow glens. Both hill ranges are popular with walkers, the Campsies especially so with the main access points being via the conservation village of Clachan of Campsie and the Crow Road.

Grasslands
Neutral grassland is one of the most common habitat types in East Dunbartonshire. There are a number of species-rich grasslands to the south and east of Lennox Forest that have arisen from a combination of acid and base-rich soils, and low intensity grazing management. Examples of important grassland areas include South Braes SSSI, Sculliongour Limestone Quarry SSSI (calcareous grassland), South Brae Marsh, Barraston Quarry Grasslands, Finniescroft and Redmoss Grasslands.

There are a number of marshy grasslands in East Dunbartonshire that range from species poor rush dominated pastures to floristically diverse marshes such as Balgrochan Marsh and Springfield Marsh, that have a colourful array of wildflowers, grasses, sedges, rushes, ferns and mosses. Current threats to marshy grassland include drainage and development.

Lowland Bogs
Lenzie Moss, Low Moss, High Moss, Barbeth Moss and Gartshore Moss represent a significant amount of lowland bog habitat in central western Scotland. Unfortunately, these areas are constantly threatened from dangers such as drainage, agricultural improvements, peat removal and development pressure. Specific plants linked to such areas include Cotton Grass, Cross-leaved Heath, Sun Dew, Spagnum mosses and the carnivorous Common Butterwort. Plantations on sites such as Low Moss, High Moss and Easterton Moss have negatively impacted on the quality of the peatland sites and require positive management.

SSSI
Sites of Special Scientific Interest (SSSIs) are nationally important sites designated for their fauna, flora or features of geological interest. They are afforded special legal protection under Section 28 of the Wildlife & Countryside Act 1981, as amended by the Nature Conservation (Scotland) Act 2004, and represent areas of highest national conservation importance. Further information on SSSI's can be found through the weblink www.snh.gov.uk/SNHi. East Dunbartonshire has six SSSIs.

Local Nature Reserves
Local Nature Reserves (LNRs) are areas that have been declared under section 21 of the National Parks and Access to the Countryside Act 1949 on grounds of their nature conservation interest, along with relevance to education and use of the community for the enjoyment of local wildlife. East Dunbartonshire has three LNRs.

East Dunbartonshire's Designated Sites

Name of site	Designation
Kilmardinny Loch	Local Nature Reserve
Lenzie Moss	Local Nature Reserve
Merkland	Local Nature Reserve
Cadder Wilderness	Site of Special Scientific Interest
Corrie Burn	Site of Special Scientific Interest*
Manse Burn	Site of Special Scientific Interest*
Mugdock Wood	Site of Special Scientific Interest
Sculliongour Limestone Quarry	Site of Special Scientific Interest
South Braes	Site of Special Scientific Interest

*Noted for its geological interest

LNCS

Local Nature Conservation Sites (LNCS, previously known as SINCs) are non-designated sites that are recognised on account of certain local important features of habitat, plant or animal communities or geology. Please note the following list does not include LNCS geodiversity sites.

East Dunbartonshire LNCS

Baldernock	Barraston Quarry Grasslands Blairskaith Quarry Craigmaddie Plantation Craigmaddie Muir/Craigend Muir/Blairskaith Muir
Balmore	Balmore Haughs Glen Orchard/Blairnile Wood
Bardowie	Allander Toll Bardowie Loch and Wetland Bardowie Woodland
Bearsden	Hutcheson Hill St. Germains Loch Templehill Wood
Bishopbriggs	Buchley Farm Buchley Sand Pit Cadder Grassland Cadder Yard Cawder Golf Course Woods High Moss Plantation Low Moss Rookery Plantation, Old Ammunition Dump
Gartshore	Barbeth Moss Easterton Moss Complex Gartshore Moss and Grayshill Woods Gartshore Woods, Kennel Plantation, Heronryhill
Kirkintilloch	Bridgend Marshes Broomhill Ox-bow and Broomhill Hospital Marsh Harestanes Hayston Oxbows Kenmure Marsh Oxgang Springfield Marsh Waterside Bing Waterside Flood Pool & Barbeth Pool

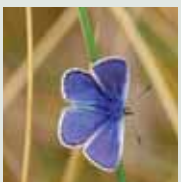
Section

Lennoxtown	Balgrochan Marsh Campsie Glen Campsie Glen Golf Course/Meikle Reive Craigbarnet Fin Glen/Almeel Burn Finniescroft Glazert Wood Lennox Forest South Brae Marsh
Lenzie	Millersneuk Wetland
Milngavie	Auldmurroch Burn and Woods Carbeth Wood Castlehill Grasslands Craigdhu Wedge Craigmaddie & Mugdock Reservoirs Craigmore Mire Craigton Woods Douglas Muir Dougalston Estate and Loch Mains Plantation Mugdock Wood and Drumclog/Cloberfield South East part of Hilton Park Golf Course Tannoch Loch
Milton of Campsie	Alloch Dam and Mount Dam Antermony Loch Ashenwell Dams Birdston Meadows Redmoss Grasslands Spouthead Woodburn Glen/Kierhill Woodburn Reservoir
Torrance	West Balgrochan Marsh
Twechar	Barhill Twechar Marshes

Wildlife corridors

In addition to the above sites, special mention should also be made of the numerous wildlife corridors found in Dunbartonshire that play host to, and allow the movement of wildlife throughout the region. Such corridors are of considerable importance, especially when they are located in highly populated areas with development pressure. Wildlife corridors often come in the form of watercourses, woodland strips and hedgerows and can be vital for harbouring and protecting wildlife when managed in the correct way. In the new EDC Local Plan, wildlife corridors are referred to as *LNCS wildlife corridors.*

The key wildlife corridors include the River Kelvin, Glazert Water, Allander Water, Forth & Clyde Canal, Bothlin Burn and Luggie Water. Such corridors often support a range of grassland, marsh and tall herb communities along with (in some cases) substantial strips of woodland and wetland. On a smaller scale road verges and hedgerows can also act as wildlife corridors, if properly managed.





Habitat Description of West Dunbartonshire

West Dunbartonshire is located to the North-west of the City of Glasgow, and contains a number of commuter towns and villages along the north of the River Clyde. Extending to 68 square miles with a population of around 94,000, it is the fourth smallest council in Scotland. The area forms the most north-western part of the Glasgow & Clyde Valley conurbation and borders onto Argyll & Bute, Stirling, East Dunbartonshire, Glasgow and Renfrewshire, with some of the land found within the confines of the Loch Lomond & the Trossachs National Park.

Despite its small size, the landscape of West Dunbartonshire is diverse, with the Kilpatrick Hills and its rugged moorland forming the backdrop to the valleys of the Rivers Clyde and Leven. The urban landscape is linear in nature and contained by the rising topography of the Kilpatrick Hills and the Bromley and Carman Muirs. Forty percent of the land is classified as open countryside, representing a significantly higher average proportion than many other Local Authority areas in Scotland.

West Dunbartonshire has undergone a major transformation in recent times, primarily as a result of the decline in traditional industries such as shipbuilding and heavy engineering. However, regeneration initiatives such as Clydebank Riverside and Dumbarton Waterfront have tried to address urban renewal and regeneration and increase environmental quality.

It should be noted that this LBAP will cover all of West Dunbartonshire, excluding the area found within the National Park which is covered by its own Biodiversity Action Plan.

Marine and Watercourses

The major watercourse in West Dunbartonshire is the River Leven, an important wildlife corridor linking the Clyde Estuary into Loch Lomond and beyond into the Highlands. Feeding into the Clyde Estuary, the Leven is tidal from around Dumbarton Golf Course and is a nationally important migratory route for Atlantic Salmon, Sea Trout and Sea Lamprey. On the lower reaches of the River Leven and Clyde Estuary are mudflats that when exposed at low tide extend along until Milton. The Inner Clyde has been designated as a Site of Special Scientific Interest (SSSI), RAMSAR site and Specially Protected Area (SPA). This indicates that it is of international and national importance for the large number of waders and wildfowl the area attracts primarily in the Autumn and Winter.

There are a number of open freshwater bodies such as Carman reservoir, Loch Bowie and Loch Humphrey in the area that support a variety of aquatic, marsh and swamp communities. The lochs within the Kilpatrick Hills all occur above 200m above sea level and along with a number of reservoirs (such as Greenside Reservoir, Burncrooks Reservoir, Kilmannan Reservoir, Burnbrae Reservoir and Black Linn Reservoir) support a wide range of flora and fauna. The Forth & Clyde Canal has its westerly tip in West Dunbartonshire and is a wildlife corridor in the area, along with the Cochno and Duntocher Burns.

Woodlands

The broadleaved woodlands of West Dunbartonshire have undergone a dramatic transformation in recent times due to agricultural and developmental pressures. In upper valleys, extensive woodland has been reduced to patches along river banks and streams, while lower valley forests have suffered as a result of urban development. Despite this, some relic or semi-natural woodlands have survived, such as Auchnacraig Woods, Auchentorlie Wood and Kilpatrick Braes, Pappert Wood, Crosslet House Woodland, Murroch Glen, Nobleston Estate Wood, Stoneymollan Road Wood, Poachy Glen, Alexandria Woods, Whiteleys Wood, Cochno Hill (and surrounds) and Overtoun Estate Woods. The NCC Inventory of Ancient, Long Established and Semi-natural Woodland shows only one site in Clydebank as ancient (along the Duntocher Burn at Auchentoshan Woods).
The presence of locally rare species along with a rich array of ground flora supports the fact that some of the aforementioned sites are well established. Examples of fine policy planting can be found in Edinbarnet, Auchnacraig and Cochno.

Coniferous plantations also form a striking feature of the landscape, particularly at sites such as Pappert Hill, Craigarestie, Aucheneden, Auchentorlie, Merkins and by Tullichewan Castle. A new mixed woodland site at Cochno Hill was created by the Forestry Commission (Scotland) in 2009.

Section 2

Upland areas
The upland areas of West Dunbartonshire are characterised by large open areas of moorland. From north to south, the west side of the Vale of Leven is comprised of five moors - Tullichewan Muir, Bromley Muir, Overton Muir, Millburn Muir and Carman Muir. East of the Vale of Leven is composed of similar habitat, also with five moors - Auchencarroch Muir, Blairquhomrie Muir, Merkins Muir, Gallangad Muir and Auchenreoch Muir. Additionally, the Kilpatrick hills with Dumbarton Muir to their north provide a large area of upland moorland for a variety of species.

Amphibians and reptiles also take advantage of this habitat with the upland areas being home to Common Lizard, Smooth and Palmate Newt, Adder as well as the Common Toad and Frog. The habitat is important for Curlew, Snipe, Red Grouse and Cuckoo. The rarer Black Grouse also use this habitat for lekking with the hens taking advantage of the covering of Heather and Cottongrass for feeding. Smaller birds such as the Skylark, Meadow Pipit and Stonechat are all frequently seen. Other species of note found in this area are Green Hairstreak butterfly, Stoat, Peregrine Falcon, Merlin, Buzzard, Kestrel and Green Woodpecker.

Grassland
Good quality neutral grasslands can be found in Balloch Country Park and along the eastern edge of Bellsmyre (although within the boundary of the Loch Lomond & the Trossachs National Park, the Country Park is maintained by West Dunbartonshire Council). Remnant neutral grassland exists at Ballantines Orchid Colony.

Vacant land and quarries
There are a number of derelict sites in West Dunbartonshire that have become colonised by scrub, grassland, tall ruderal vegetation and bramble. Brownfield sites can attract a multitude of different species that use them for nesting or foraging. There are a number of quarries (disused and active) in West Dunbartonshire such as Bonhill Quarry, Dalreoch Quarry, North Lodge Quarry, Carman Muir Quarry, Dumbain Quarry and former sites at Dalmonach and Drumkinnon. The presence of such quarries, with their exposed rock faces, associated vegetation and rockpools provide additional habitats within the area, and can be of special interest to raptors, Sand Martin and amphibians.

Natura 2000
Natura 2000 sites belong to a European network of protected sites that represent areas of the highest value for natural habitats and species of plants that are rare, endangered, or vulnerable. There are two types of Natura 2000 designation - Special Protection Areas (SPA) and Special Areas of Conservation (SAC). The Inner Clyde is designated as a SPA.

Ramsar sites
Represent wetland sites of international importance designated under the RAMSAR Convention. The Inner Clyde is designated as a Ramsar site.

SSSI
Sites of Special Scientific Interest (SSSIs) are nationally important sites for their fauna, flora or features of geological interest. They are afforded special legal protection under Section 28 of the Wildlife & Countryside Act 1981, as amended by the Nature Conservation (Scotland) Act 2004, and represent areas of highest national conservation importance. Further information can be found through the weblink www.snh.gov.uk/SNHi. Excluding the area within the National Park, West Dunbartonshire has eight SSSIs.

Local Nature Reserves
Local Nature Reserves (LNRs) are areas that have been declared under section 21 of the National Parks and Access to the Countryside Act 1949 on grounds of their nature conservation interest, along with relevance to education and use of the community for the enjoyment of local wildlife. West Dunbartonshire has one LNR (The Saltings) and two proposed LNRs (Brucehill Cliffs and Faifley Knowes).





Gardens and Designed Landscapes

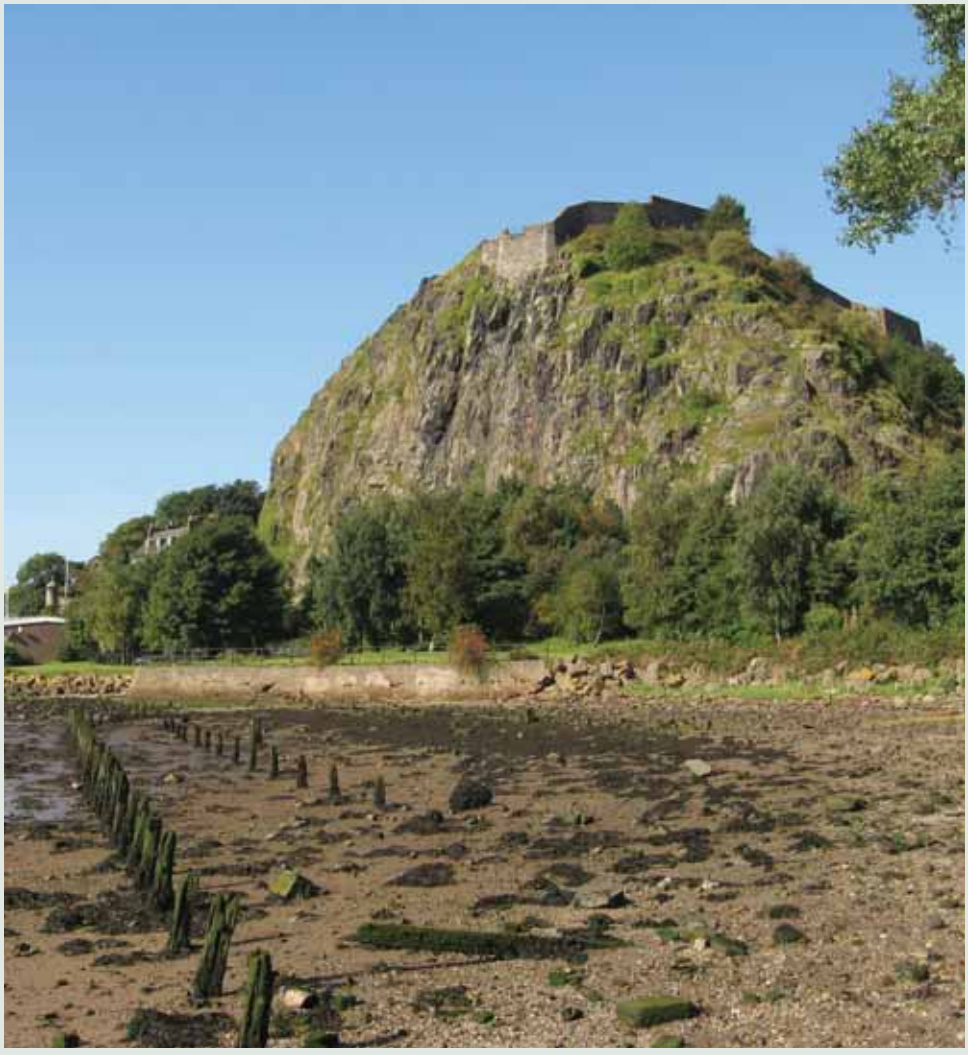
Gardens and Designed Landscapes provide a representative sample of important historic gardens or landscapes. As well as being part of the scenery of Scotland and helping to attract tourism, they illustrate unique artistic talent, house valuable and rare plant collections, protect undisturbed habitats and are an important historic and education resource. Overtoun represents WDC's sole Garden and Designed Landscape.

West Dunbartonshire's Designated Sites

(excluding the Loch Lomond & the Trossachs National Park area)

Name of site	Designation
Inner Clyde	Ramsar, Special Protection Area and Site of Special Scientific Interest
Auchenreoch Glen	Site of Special Scientific Interest*
Dumbarton Muir	Site of Special Scientific Interest
Dumbarton Rock and Foreshore	Site of Special Scientific Interest*
Glenarbuck	Site of Special Scientific Interest*
Hawcraig-Glenarbuck	Site of Special Scientific Interest
Lang Craigs	Site of Special Scientific Interest
Loch Humphrey Burn	Site of Special Scientific Interest
The Saltings	Local Nature Reserve
Brucehill Cliffs	Local Nature Reserve (proposed)
Faifley Knowes	Local Nature Reserve (proposed)
Overtoun	Gardens and Designed Landscapes

*also noted for its geological interest



Section 2

LNCS

Local Nature Conservation Sites (LNCS, previously known as SINCs) are non-designated sites that are recognised on account of certain local important features of habitat, plant or animal communities or geology. The Council has identified their Local Nature Conservation Sites through the 2008 Nature Conservation Strategy LNCS Report, which reviewed and identified additional local natural heritage sites and features important to biodiversity.

West Dunbartonshire LNCS (excluding those within the Loch Lomond & the Trossachs National Park) - includes sites proposed as part of the LNCS Review 2008.

Site Name

A82 verge
Alexandria Wood
Auchenreoch Muir
Auchentorlie Glen
Auchentorlie Wood
Auchnacraig (Western Cochno Parkland)
Ballantines Orchid Colony
Beechwood - Broomhill Wood
Bellsmyre Grasslands
Blairvault Burn and Pappert Muir
Bonhill Muir & Pappert Hill
Brucehill - Inland Cliff
Carman Muir
Cochno Hill and Loch Humphrey Burn
Cordale Point
Craigandro Wood - Renton Wood 1 & 2
Craigarestie & Brown Hill
Dalquhurn Point
Dalreoch Quarry
Dillichip Grassland
Disused Railway Line
Duncolm and Craighirst
Duntocher Burn & Auchentoshan Wood
Duntocher Burn (North)
Edinbarnet woodland
Fishers Wood & Boat House Wood
Fyn Loch Heath
Kilpatricks Braes
Loch Bowie
Lusset Glen
Morar Road Parkland
Mullour
Murroch Glen
Nobleston Estate Wood
Nursery Woodland
Overtoun and Bromley Muir
Overtoun Estate, Overtoun Burn & Barwood Hill
Pappert Wood & Bonhill Quarry
Poachy Glen
River Leven Corridor
River Leven Swamp (East Bank, East Bank Marsh, West Bank, Pond plus 3 other sites)
Stoneymollan Road Wood
Thief's Hill and Earl's Seat
West Dumbarton Muir
Wester Cochno Burn
Whiteleys Wood

Major Wildlife corridors in West Dunbartonshire include the Rivers Clyde and Leven (plus tributaries), Cocho Burn, Duntocher Burn, railway lines and embankments and the Forth & Clyde Canal.





Habitat Action Plan 1:

Urban

Greenspace

Good quality public greenspace provides many environmental, social and economic benefits. They offer opportunities for recreation, sport and play, social interaction, encourage healthy lifestyles, contribute to a sustainable natural environment and visually enhance the general attractiveness of an area. Many people assume that biodiversity is very much linked to the countryside, however urban areas play host to a great number of species that have adapted to our modern day living. Green open spaces therefore make it possible for people to maintain contact with nature on a daily basis.

In recent times however, urban swell has threatened biodiversity, particularly so in greenbelt areas and town fringes. Modern day practices such as development on greenbelt, removal of native trees and hedgerows and inclusion of turf grass and exotic species in housing and industrial landscapes have severely impacted on habitat diversity and opportunities for wildlife foraging. Although statutory obligations for biodiversity are generally observed through the planning process, local developers can play a key role in optimising sites for wildlife and by adopting a more sustainable approach to construction. A more naturalistic grassland management regime should be approached to foster the growth of wildflowers and grasses. By including low/or no cost schemes such as native hedges for boundary features, native planting, wildflower meadow creation and erection of bat and bird boxes, through to medium-high cost features such as green roofs and sustainable drainage systems planted specifically for biodiversity, developers and land managers can not only help biodiversity but help play their part in green and sustainable urban development.

The benefits of having good quality greenspace are well known. East and West Dunbartonshire Councils have two very active units working to provide high quality community greenspace through extensive community consultation and engagement in practical conservation projects: East Dunbartonshire Greenspace and The Environment Trust (covering West Dunbartonshire). Both teams are members of the Dunbartonshire Biodiversity Partnership and collaborate with a number of organisations including the Countryside Ranger Service in each Council area.

Biodiversity and Greenspace projects in East Dunbartonshire

East Dunbartonshire has a number of greenspaces of differing sizes and shapes. Many are multi-functional in nature and are sites of high biodiversity value. The East Dunbartonshire's Greenspace Strategy (2005-10) sets out its aspiration for greenspace, that encourages opportunities for environmental education and enhancing the ecology of habitats. Any improvements to greenspace are designed to help meet LBAP targets to safeguard priority species and their habitats.

The main themes of the East Dunbartonshire Greenspace Strategy are to:

- Establish effective, co-ordinated partnership working for the delivery of high quality greenspace
- Provide a network of well designed multi-functional, clean, safe and accessible greenspaces that are well resourced/managed and meet the needs and aspirations of the community (of which biodiversity is a major objective)
- Encourage a sense of 'ownership' and involve local communities in the planning and management of greenspaces through meaningful community engagements
- Extend functionality and maximise the greenspace resource
- Raise awareness of greenspaces through education, interpretation, signage and events

Section

The East Dunbartonshire Greenspace Team, supported by SNH, has been working in partnership with the Countryside Ranger Service and local community groups to carry out such improvements. Examples include:

Woodlands In and Around Towns grant scheme (WIAT):
31 woodlands across East Dunbartonshire have benefited from improvements to access and biodiversity through this scheme. One example is Cairnhill Woods in Westerton which has benefited from tree thinning to promote the growth of native species, Rhododendron removal and path upgrades. A newly formed constituted group now proactively supports biodiversity improvements in the woodland. Bird boxes have been made and erected, along with community clean-ups. Environmental education activities with the local school have been delivered by the group in conjunction with the Countryside Ranger Service. Further plans include wild flower planting. For more information on the WIAT scheme please refer to the Woodland Section.

Low Moss habitat restoration project: Low Moss is an 18ha, lowland raised bog remnant found to the north of Bishopbriggs. The integrity of the site has been compromised over the years by marginal peat cutting and incision of drains. The Council commissioned a hydrological study and the drawing up of a management plan, which identified the need to remove young, naturally regenerated trees that were drying out the bog. The timber from these trees has been used to construct small natural dams throughout the site. Greenspace staff have been working with volunteers from BTCV and the Countryside Ranger volunteer team to install the dams, which have proved remarkably successful over a short period of time. Small ponds were excavated in 2010 to improve the amphibian habitat.

Merkland Local Nature Reserve: Project work has been ongoing for a number of years and started with the installation of a good path network. There is a strong Management Group comprising local volunteers and Council staff. The Merkland Conservation Volunteers group meets with a Ranger on a monthly basis to undertake biodiversity projects including tree thinning, pond creation and building hibernacula. A recent grant from the Community Environmental Renewal Scheme for 'Raising the Profile' included 2 community newsletters which highlighted to local people the importance of the nature reserve and its associated biodiversity. Regular Countryside Ranger events help to promote the site.

Lenzie Moss Restoration Project: Lenzie Moss is another area of great biodiversity importance. However, active management of this site was suspended in 2003 pending results of a hydrology study of the Moss to determine what effect Lenzie Moss had on flash flooding in the area in 2002. The hydrology study has recently been completed and a new Management Plan taking into account the hydrology of the site has been finalised. The Friends of Lenzie Moss are very active in promoting the benefits of the Moss. Local schoolchildren are involved with biodiversity projects and a project to conserve locally scarce Bog Rosemary has been carried out. 2009 saw the implementation of a 5-year Management Plan that started with birch scrub removal and dam building.

Alternative management plans have been put in place in several parks in consultation with East Dunbartonshire local community groups. This includes the transformation from short cut grass areas to more bio-diverse rich habitats. Parks include:

- King George V Park, Bearsden. New management regimes include: wildflower meadow creation, replacement of shrub borders with native plants and native tree planting. Pupils from local primary and secondary schools along with guiding/scouting groups have been involved in the creation and maintenance of these new habitats.
- Mains Park, Milngavie. Plans include wildflower meadow creation and woodland management.
- Whitefield Pond, Lennoxtown. Staff from Greenspace have been supporting local residents in Lennoxtown to improve the biodiversity of Whitefield Pond, and improve the management of the surrounding area.





The Environment Trust

The Environment Trust was established in 2003 to work in partnership with local communities within West Dunbartonshire with the following objectives:

- To conserve, restore and improve the environment;
- Promote environmental awareness;
- Develop partnerships;
- Inspire others; and
- Adopt sustainable practices

To date, the Trust has primarily been concerned with medium to large-scale regeneration projects in derelict and disadvantaged communities, focusing on issues such as access and investment in play facilities. Between 2003 and 2005, the Trust produced a series of Environmental Action Plans (EAPs) resulting from community consultation workshops in Haldane, Dalmuir, Drumry, Brucehill, New Bonhill, Whitecrook including Clydebank East. In 2007/2008 two further EAPs in Bellsmyre and Castlehill were also completed.

A significant biodiversity project was the Haldane Green Corridor in collaboration with the Haldane Regeneration Group. In 2004, the project had created two new footpaths with low pollution lighting, installation of a footbridge and a fitness/activity trail plus extensive landscaping (the latter two undertaken by the Enviro Squad). The Tullochan Trust played a major role in the tree planting element of the project as part of one of only six 'national tree planting week' schemes in Scotland. This project was recognised for its outstanding contribution to community regeneration by the Scottish Urban Regeneration Forum with its top award for environmental improvement for 'Place'.

Other major achievements for biodiversity include the Contemplation and Family Gardens at Rosshead and the community Foreshore Footpath Link at Brucehill. The improved access at Brucehill will allow visitors and residents alike to enjoy the beauty of the River Clyde shore, including the butterflies that are attracted to the Brucehill grasslands (proposed LNR). Biodiversity is planned to become an ever increasing feature in upcoming projects, particularly in relation to soft landscaping and the creation or expansion of wildlife corridors.

Recent, successful achievements and planned biodiversity projects of The Environment Trust include:

Rosshead Community Gardens:

Involved the removal of non-native invasive species from a local woodland and delivery of a community woodcraft day to highlight the importance of native woodlands. The work was carried out in collaboration with Rosshead Tenants and Residents Association.

Drumry Linear Park:

Working in partnership with The Woodland Trust Scotland, a native woodland was created in Drumry in 2007/2008, planted by local school children and volunteers. The new woodland, located along the grassy embankments surrounding Drumry will help improve biodiversity, increase community engagement in their local greenspace, help reduce the impact of pollution and increase the general attractiveness of the area. The Trust intends to work with local school children to create wildflower mounds throughout the park along with additional tree/shrub planting to increase habitat diversity and interpretation opportunities.

Castlehill:

in 2007/2008 a new play space for junior ages was designed and built next to Knowetop Farm. The next phase will include planting for biodiversity. This project has been helped with the strength and enthusiasm of the Castlehill and Westcliff Action Group.

Section 3

Learning opportunities in urban areas

Forest Schools

'Forest School' represents an alternative teaching environment that is complementary to the traditional indoor classroom, and provides an opportunity for active learning in a woodland environment. The School involves children visiting a local wood on a regular basis and over an extended period of time. Forest School is establishing itself in Scotland, and is facing increasing interest from education professionals. Already, evaluation in England and Wales has shown how the Forest School experience builds a child's confidence, self-esteem and improves social integration at the same time as broadening wildlife knowledge skills. Anecdotal evidence also suggests Forest Schools positively impact on a child's academic performance.

In May 2008, a successful pilot Forest School project in West Dunbartonshire was carried out in Balloch Country Park, with P4/5 pupils from Haldane Primary School, Balloch. The project, funded by the Education Department and co-led by West Dunbartonshire Council staff was a resounding success.

Urban Action Plan

Greenspace

Factors Causing Loss or Decline of Habitats and Species

- Habitat fragmentation, inappropriate development
- Inappropriate use of ornamentals in landscaping plans and removal of native species
- Lack of maintenance that is detrimental to wildlife or unnecessary over-maintenance
- Lack of protection for urban sites of importance for nature conservation
- Lack of public information and awareness
- New development that impacts on biodiversity
- Overuse or inappropriate use of chemicals
- Spread of invasive species

Action Plan Objectives

Objectives

- To protect and enhance biodiversity within the greenspace resource in Dunbartonshire
- To improve biodiversity in urban areas and reduce habitat fragmentation
- To raise awareness of biodiversity in Dunbartonshire through environmental education, events and promotion and support of initiatives such as Eco-schools and Forest Schools
- To develop biodiversity projects with community groups and businesses
- To incorporate biodiversity in programmes of work in Council departments
- To inform Council services and other public bodies of their statutory duty to further the conservation of biodiversity





Urban - Greenspace

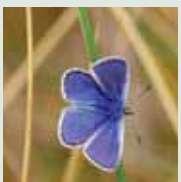
O = ongoing, S = short term (2010-2011), M = medium term (2010-2013), L = long term (2010 -)

	Lead Partner(s)	Time-scale
Target 1: To identify, designate and monitor Local Nature Conservation Sites in urban areas		
Action required Develop and implement programme of work as identified in the Local Nature Conservation Site (LNCS) reviews in East and West Dunbartonshire	EDC, WDC	L
Target 2: To seek LNR (Local Nature Reserve) designation status for relevant sites in East and West Dunbartonshire, and to obtain funding for their respective management		
Action required Explore LNR status and designation for Balgrochan Marsh (Lennoxtown) and West Balgrochan Marsh (Torrance) along with other relevant sites	EDC	M
Seek LNR designation for Brucehill Cliffs and explore possibility of designation for Faifley Knowes	WDC	M
Target 3: To develop and manage community greenspaces with an emphasis on biodiversity		
Action required Continue to support improvements and management of Kilmardinny LNR, Merkland LNR and Lenzie Moss LNR in partnership with the local management group. Carry out habitat enhancement work to support the site's wildlife	EDC	O
Continuation of support to community groups to improve their local greenspaces (e.g. biodiversity improvements at Etive, Menteith and Woodhill Parks, Bishopbriggs, Torrance, Lennoxtown, and Cadder)	EDC	O
Work with Planning and Central Scotland Forest Trust to identify at least 2 derelict sites that are suitable for environmental improvements including establishment of community woodlands	EDC, CSFT	O
Continue programme of biodiversity improvements to Mains Park, Milngavie and King George V Park, Bearsden	EDC	O
Continue and develop management work at The Saltings Local Nature Reserve (implement woodland management operations, education work, biodiversity enhancements, way marked walks, interpretation panels and art trail)	WDC	O
Dalmuir Park and Auchentoshan Management - support and implement habitat enhancement work in both areas, through consultation with local residents and formation of a Friends of Dalmuir and Auchentoshan group	WDC	L
Carry out School Ground Audit to include potential for biodiversity enhancements	Env. Trust	S
Carry out Water Vole habitat improvement work at Faifley Knowes	WDC	S
Work with local residents to enhance the habitat at Drumry Linear Park (wildflower meadow creation and additional tree/shrub planting) and Castlehill (creation of a new community garden)	Env Trust	S

EDC also includes East Dunbartonshire & Mugdock Country Park Ranger Service

Section 3

Target 4: To increase the number of biodiversity initiatives in schools		
Action required	Lead Partner(s)	Time-scale
Encourage young people to become involved with improvements to their local greenspaces (e.g. through supporting school eco-committees to develop school wildlife gardens and working with Cultural co-ordinators/Arts development workers on Biodiversity-Arts projects	EDC, WDC, CSFT	O
Eco-Schools playground improvements - work towards all eco-schools including biodiversity in their project activities	EDC, WDC, Env. Trust	M
Target 5: To increase environmental awareness and number of local residents and conservation groups participating in wildlife surveying and practical conservation work		
Action required	Lead Partner(s)	Time-scale
Implement restoration work at Low Moss: build 60 natural dams, remove young pine from raised bog area and create a network of ponds	EDC	M
Pappertwell Community Woodland Management - continue with appropriate woodland management, expansion of woodland, open up pathways to improve site lines, repair culverts and fly tipping	WDC	M
Community tree and bulb planting - planting of trees and spring bulbs with school groups, community groups and other agencies. Aim to work with at least 10 Dunbartonshire schools per year	EDC, WDC, Env. Trust	O
Target 6: To continue to support and work with all Council departments on issues relating to biodiversity		
Action required	Lead Partner(s)	Time-scale
Improve verge-side and recreational grassland maintenance to enhance biodiversity, along with reviewing extent and management of hedgerow cutting. Work towards 5% of amenity grassland managed for biodiversity (SOA target)	EDC, WDC	M
Devise a training programme for Planners on wildlife issues in the Planning process	SNH, EDC, WDC	S
Continue participation in the Local Plan process	All	O
Take into account local biodiversity when assessing landscaping issues relating to planning developments - promote the use of native species in landscaping and improve riparian corridors to protect and facilitate natural movement of species	EDC, WDC	O





Businesses

Engaging Business

Biodiversity conservation is an area of work that is unfamiliar to many businesses but one which has significant potential in terms of public relations, staff development, improved relationships with customers and communities, corporate responsibility and the enhancement of biodiversity, on- and off- site. Essentially businesses need to understand and acknowledge how biodiversity conservation is relevant to their business and why they should, in some cases, prioritise biodiversity conservation against other issues they have to deal with.

In general, open space associated with many businesses often consists of regularly mown grass with a variety of native and ornamental tree species. The use of flowers is generally restricted to non-native plants chosen for their colour, evergreen nature and low maintenance requirements. In real terms this setting is a poor environment for biodiversity and can be transformed into a wildlife area very easily. Simple measures such as the planting of thorny species (e.g. Blackthorn, Hawthorn, Berberis, Holly, Firethorn, Sea Buckthorn and Dog Rose) can provide an important habitat for a variety of species, in addition to helping to improve the safety of a site by limiting access. Reducing the severity of grass cutting, or sowing grass mixed with wildflowers will transform an area of sterile grass into a haven for invertebrates. Encouraging the incorporation of sustainable drainage systems into business sites and associated planting up for biodiversity, construction of green roofs, hedgerow management and erection of bird and bat boxes can all play a significant part in helping biodiversity. In addition businesses should be encouraged to take part in Eco-work days, where employees can help with practical conservation and planting projects in local wildlife sites.

Recycling of building materials instead of transferring waste to landfill sites will also help address the significant amounts currently disposed of by this method. East Dunbartonshire Council is developing a Sustainable Construction Policy, Standards and Guidelines in accordance with sustainable good practice, to be applied to new construction projects, where maximising local biodiversity is to play a key issue. The Local Plan will be an important vehicle to take these measures forward to build on biodiversity protection currently provided by Environmental Impact Assessments. The council is also pursuing in-house sustainability through the Green Office initiative that could be extended to include enhancing workspace for biodiversity.

Businesses

Factors causing Loss or Decline of Habitats and Species

- Development on sites that have an impact on biodiversity
- Fly tipping
- Lack of funding for wildlife projects
- Improper management of areas with invasive species
- Lack of specialist knowledge
- Lack of understanding and awareness of biodiversity issues
- Lack of education on funding opportunities
- Lack of perceived space to carry out biodiversity enhancements
- Pollution (e.g. through chemical or light pollution)

Action Plan Objectives

Objectives

- To improve knowledge and understanding of biodiversity in businesses
- To encourage businesses to incorporate biodiversity into the workplace

Section 3

Urban - Business

O = ongoing, S = short term (2010-2011), M = medium term (2010-2013), L = long term (2010 -)

	Lead Partner(s)	Time-scale
Target 1: Provide advice and free, targeted advisory material to businesses		
Action required Promote environmental enhancements with developers in the planning process through creation of an advice note for businesses; advise business grounds maintenance teams of wildlife-friendly grassland management techniques	EDC, WDC	O
Raise awareness of biodiversity with local businesses through targeted advisory material and delivery of talks. Deliver at least one talk to businesses/Scottish Enterprise per year	EDC, WDC	O
Target 2: Promotion of low/no-cost biodiversity enhancements in the work place or participation in practical conservation projects		
Action required Develop employee volunteer work days with the British Trust for Conservation Volunteers and local businesses. Deliver at least 2 BTCV work days with businesses per year/deliver 4 similar events with the Ranger Service per year	BTCV EDC, WDC	O
Increase in-house sustainability in the Council by including measures of how to enhance biodiversity in the workspace ("Green Office Initiative")	EDC, WDC	S
Develop and advise on biodiversity enhancements in local regeneration projects through the Community Planning Partnership	EDC	S
Support implementation of Habitat and Species Action Plans for Douglasmuir and Inchbelle Quarries	Tarmac	L
Develop sustainability-led projects to help local biodiversity (e.g. Sugar Donation Project for local bee keepers).	EDC, WDC	S

Golf Courses

Golf courses can provide an excellent variety of habitats for wildlife. A wildlife friendly course may harbour around 60 species that are recognised as important in local bio-diversity plans. Some courses have extensive areas of "rough" ground that are managed for wildlife and include heathland, marshes, woodlands, species-rich grasslands, ponds, rivers and burns. Greenkeepers and golfers are becoming evermore aware of the natural environment, with the result that Hilton Park Golf Course became the first recognised Wildlife Site in East Dunbartonshire (as designated by the Scottish Wildlife Trust). On this course, golfers and staff keep records of birds and other wildlife, and have large areas managed for nature.

Distribution

Dunbartonshire has twenty two golf courses in total, most of which are situated in lowland areas and border onto local communities for ease of access. However, some are rural and found on, or near to, upland heathland habitat.





Ecology & Management

Golf course management is not just simply cutting grass! Maintenance on a landscape basis, particularly on Scottish golf courses encompasses some, if not all, of the following:

Woodland Management

Trees provide definition for fairway edges or low maintenance areas in and around golf courses. In addition, they provide valuable wildlife habitats and corridors. In wet areas, Willow, Downy Birch and Alder are often found, whereas in well-drained soils, Scots Pine, Silver Birch, Oak and Ash dominate. A mix of ages and species creates a greater variation in the genetic stock, lessening the risk of the spread of disease and the loss of trees through wind damage, while a diverse range of trees and ages provides differing canopy height and micro-habitats. Where it's safe to do so, dead timber can be left standing as this can provide habitat for insects, bats and birds, while fallen timber and branches stacked to create habitat piles encourage a variety of insects and fungi.

Grassland Management

Areas of rough grassland can have high biodiversity value and provide invaluable habitat corridors that help link other semi-natural habitats both within the golf course and beyond. Grassland also offers excellent water retention opportunities as well as preventing soil erosion. Invasive species such as bracken can also feature heavily in grassland management. For example, once bracken control is in place, areas of rough grassland can be managed to not only provide wildlife habitats, but also buffer strips of rough for water features, ditches and other sensitive areas. Rough grassland requires annual maintenance, such as one "cut and rake" in September, that lowers maintenance costs and encourages growth of wildflowers. Grasslands can be made more visually interesting and diverse with the addition of native wildflower seed mixes or native wildflower plugs. Careful planting of appropriate species adds visual stimulus and can be valuable bird, mammal and invertebrate habitats in themselves if they adjoin rough grassland.

Ponds and Wetlands

Management of existing ponds and wetlands, together with the creation of new watercourses encourages a wide diversity of wildlife while providing course drainage and primary water treatment. Ponds and wetlands can be very aesthetically pleasing on golf courses (in addition to being golfing hazards!).

Problems associated with golf course ponds

Once established, the long-term management costs of wetland features are sometimes forgotten at great cost to both wildlife and golfer. One common mistake is to introduce Common Reedmace into ponds, where it can choke the pond and greatly reduce the wildlife value within a few years. Thereafter it can be very costly to remove.

Wetlands are important wildlife habitats that need to be protected from chemical applications and drift spray. Under Local Environment Risk Assessments for Pesticides (LERAP), 6m buffer zones have been established for some pesticide use. However this can be reduced when using LERAP-tested and approved jets. In addition, under the Groundwater Regulations, golf courses cannot flush sprayer washings down the drain or onto waste ground.

Where there is the presence of a homogenous cover of one plant type, this can be linked to the use of chemical application or spray drift. In nutrient-rich waters for example, Common Duckweed and Canadian Waterweed are highly invasive species. Where over-nutrification (eutrophication) occurs, algal blooms form which can lead to a decrease in oxygen levels and loss of wildlife.

Section 3

Heathland

Heaths are characterised by nutrient poor, acid soils principally consisting of plants of the Heath family. Heather is usually one of the most prominent species, although Blaeberry is often found on upland heaths. On lowland heaths, Heather, Bell Heather and Cross-leaved Heath combine with gorse and grasses to provide a varied habitat, which like the upland heath is sensitive to a number of factors. This habitat may be home to game birds including Grey Partridge, as well as numerous other species such as moths, grasshoppers, crickets, dragonflies, and many other invertebrates, mammals, and reptiles such as the Common Lizard. Changes in golf course management can rapidly benefit heathland in terms of quality, health and species diversity, with benefits arising beyond its high biodiversity value. The slow growth of heathland species enables general maintenance costs to be kept low in comparison to woodland and grasslands. Many different management options can be used in order to regenerate heather. The options for golf courses are dependent on a number of localised factors including climate, land use, viable seed bank and budgets, to name but a few. Some of the options available include restricted burning, seeding, turfing and scarification.

Golf Courses

Factors Causing Loss or Decline of Habitats and Species

- Canalisation or culverting of burns
- Poor spraying practices and lack of buffer zones, causing loss of aquatic animals and plant life (e.g. herbicide-use for moss control can kill earthworms and other invertebrates)
- Habitat fragmentation or destruction through creation of new fairways in sensitive areas
- Inappropriate planting of trees on golf courses in open areas
- Inappropriate wildlife trapping (e.g. trapping of Water Vole instead of rats)
- Lack of thinning and subsequent loss of vegetation due to canopy closure in mature conifer areas
- Loss of habitats such as heath due to inappropriate management (for example over-use of fertiliser, pesticides, over-watering, excessive traffic on foot and by golf trolleys, self-sown non-native trees, burning and lack of control of invasive species)
- Poor management of rough grassland resulting in loss of native grasses and wildflower populations and dominance of invasive species
- Poor tree management and health resulting from damage by strimmers and stakes
- Neglect (for example valuable wetlands that are not actively managed can turn into scrub and then into woodland habitats)
- Nutrient and pesticide run-off into ponds

Action Plan Objectives

Objectives

- Maintain the current area and distribution of wildlife habitat on golf courses in Dunbartonshire and increase amount of semi-natural areas
- Promote appropriate environmental management of habitats in golf courses
- Promote awareness of the habitat, its public value and conservation issues
- Promote the Scottish Golf Environment Group 'Award for Environmental Excellence' and the associated benefits
- Support and encourage species and habitat surveying of golf courses





Raising general public awareness of the value of golf course biodiversity - advice for clubs

Clubs are encouraged to use the following tips:

- *Organise talks, course walks and evening presentations with the local Biodiversity Officer or other wildlife experts or enthusiasts;*
- *Display environmental documents and reports;*
- *Involve members of all ages and abilities in environmental projects e.g. photographic exhibitions, species sightings records, small-scale tree or wild flower planting projects;*
- *Initiate discussions with Ranger Services, Scottish Wildlife Trust and local groups, possibly culminating in school children and teachers taking part in bird and bat box creation and monitoring, wildlife surveys, talks and displays within the school along with water sampling of invertebrates ("pond-dipping");*
- *Promote particular management at strategic times e.g. extension of rough during highest impact flowering period;*
- *Seek opportunities to promote examples of good environmental practice in local media;*
- *Promote activities in a wider context e.g. contributing to the LBAP, Council waste strategy, or pertinent golfing initiative or promotional campaign;*
- *Consider species related to, or dependent on, particular and different habitats and the importance of sequential flowering, fruiting, seeding, shelter at different times of year.*
- *"Sell" the notion of habitat enhancement through extra information e.g. include an environmental section in newsletters, website and course guide; Pro's encouraged to include some environmental thinking in their junior coaching sessions (e.g. respecting wildlife, litter, awareness of what is involved in looking after a golf course and its habitats.)*

A comprehensive range of information can be found on www.sgeg.org.uk or in your area via the SGEG GOLF BAG (holdall, packed with relevant environmental/golfing information). There are books and videos covering tree planting, heather management, pond creation, scrub control, coastal erosion, management planning, pollution control, wildlife identification and habitat information. The local SGEG GOLF BAG can be obtained from Stuart Neil, Auldmarroch Road, Hilton Park Golf Club, Stockiemuir Road, Milngavie, Glasgow, G62 7HB. Tel: 0141 956 6844.

Suggested Reading and Publications

SGEG has produced several publications, which are free of charge and available for download on the SGEG website www.sgeg.org.uk

Title	Produced by	Printed By	Date
Climate Change and Scottish Golf Courses	SGEG	Golf Publishing Ltd	2004
Waste Management Toolkit for Golf Facilities	SGEG	Golf Publishing Ltd	Dec-04
Practical Ways to Improve Energy Efficiency in Golf Facilities	SGEG	L & S Litho	2003
Management Plans For Golf Courses (Integrated environmental management plans)	SGEG	L & S Litho	2003
Landscape Guidelines	SGEG	Geo. Stewart & Co Ltd	2004
Nature Conservation Guidelines	SGEG	Graphic Impressions Colour Printers	2004
Environmental Issues in Golf Course Construction	SGEG	L & S Litho	Dec-05

Section 3

Urban - Golf Courses

O = ongoing, S = short term (2010-2011), M = medium term (2010-2013), L = long term (2010 -)

	Lead Partner(s)	Time-scale
Target 1: Encourage golf club managers to develop environmental management plans and implement habitat conservation projects on-site		
Action required Assist golf clubs to draw up conservation management plans with all interested clubs in East and West Dunbartonshire; encourage clubs to seek external funding and implement practical projects that would benefit members and staff of the club as well as local biodiversity. Aim to work with at least 2 clubs per year in Dunbartonshire	SGEG	S
Target 2: Encourage training of Greenkeepers to raise awareness of, and promote best practice, for biodiversity on golf courses		
Action required Ensure greenkeepers on all courses in Dunbartonshire are aware of the benefits of managing their courses for biodiversity in Dunbartonshire	SGEG	O
Promote SGEG material plus biodiversity training and funding opportunities	SGEG, EDC, WDC	O
Encourage club staff and members to record wildlife seen on their courses. Seek to set up a standard recording mechanism for flora and fauna and ensure data is fed into the Local Biological Records Centre (Glasgow Museums).	SGEG	M

Species affected by this LBAP

Group A (denotes species for which action plans were written in the EDC LBAP)

Mammals:

Brown Long-eared Bat	Daubenton's Bat	Natterer's Bat
Pipistrelle Bat		

Birds:

Curlew	Grey Partridge	Linnet
Reed Bunting	Skylark	Tree Sparrow
Yellowhammer		

Plants:

Bog Rosemary*	Round-leaved Sundew*

Group B (denotes new LBAP priority species to East and West Dunbartonshire)

Mammals:

Badger	Otter	Water Vole

Birds:

Barn Owl

Plants:

Bluebell or Wild Hyacinth (not Spanish Bluebell)

Invertebrates:

Bumblebee (Bombus spp.)	Honey bee

Group C (denotes species of particular conservation concern, either at the UK or local level, or are known to be vulnerable)

Mammals:

Brown Hare	Common Shrew	Hedgehog

Birds:

Bullfinch	Gt Spotted Woodpecker	House Martin
House Sparrow	Kestrel	Kingfisher
Lesser Redpoll	Lesser Whitethroat	Merlin
Peregrine	Redstart	Ringed Plover
Sand Martin	Sedge Warbler	Short-eared Owl
Song Thrush	Sparrowhawk	Spotted Flycatcher
Swallow	Swift	Tree Pipit
Water Rail	Woodcock	

Amphibians and Reptiles:

Adder	Common Frog	Common Lizard
Common Toad	Palmate Newt	Smooth Newt

Invertebrates:

Dragonfly spp	Ladybird spp	Seven-spot Ladybird
Six-spot Burnet	Small Tortoiseshell	

Plants/Trees:

Greater Butterfly Orchid*	Oak

*Although not an urban species, this plant has been recorded in one or more urban sites in Dunbartonshire


BULLDOG

Habitat Action Plan 2:

Rural

Dunbartonshire is blessed with a substantial amount of countryside designated as Greenbelt. This land has a long history of farming, and for many centuries farmers and land owners have worked earnestly to provide communities with high quality produce at competitive prices. Due to increased competition, changes in requirements from statutory bodies and financial strain, the landscape has become fragmented as a result of intensification of farming and forestry practices, urban development and commercial industry. Increased labour costs have also had an impact: hedgerows have suffered tremendously from neglect, with many being ripped up and replaced by easily maintained fencing, while there has been a prevalence of use of herbicides and pesticides to achieve optimal rates of productivity. Over the last few decades, grant aid for farmers has gone some way towards addressing biodiversity loss in farmland, and today the Scottish Rural Development Programme offers financial assistance to anyone with an interest in managing land (including community groups) to carry out biodiversity enhancements.

Against the backdrop of commercial enterprises responding to changing consumer preferences and competition for funding, it is critical that land must be sympathetically managed for biodiversity. Priority must be placed on supporting farmers to apply for additional funding from the new Scottish Rural Development programme for biodiversity enhancements, and encouraging residents to support local farming ventures through the buying of local or Scottish produce. Farm diversification projects have also been made a priority in the SRDP which aims to help businesses broaden their commercial base by venturing into activities such as trout farming, organic produce and green tourism.

Lowland Farming

Much of the agricultural land in Dunbartonshire relates to grassland (both improved and semi-natural) and to a lesser extent arable land, which are both vital habitats for wildlife. Key habitats often found within or bordering farmland include heath (wet and dry), hedgerows, ponds, woodland shelter belts, lochs, reservoirs and mires. The main area of arable/mixed arable cropping in East Dunbartonshire lies along the Kelvin floodplain between Milton of Campsie and Summerston, and northwards into Bardowie. In the Allander floodplain, arable cropping is found east of Milngavie to the Allander Toll/Temple of Boclair area. In West Dunbartonshire, the rural land-use cover is generally found north of the A82, over the Kilpatrick Hills and continuing up to Balloch and westwards out to Stoneymollan Muir and Tullichewan Muir. Much of the agricultural land is pastoral, where cattle and sheep are the main sources of income.

Mixed farming offers a diverse range of habitats, and such heterogeneity can provide a suitable home for a number of flora and fauna, if managed in a positive way. There are some species that are very much linked to specific agriculture practices, such as Tree Sparrow and Yellowhammer which rely on mixed arable areas with overwinter stubble fields, some hedgerow trees, and rough field margins. In summer, perennial grassy strips along edges of fields and beetle banks through arable fields can provide superb habitat for mammals, invertebrates and amphibians. Such sites also play host to overwintering insects that are attractive to Grey Partridge and their chicks. During winter, weed seed and berries provide food, while boundary features such as hedgerows and dykes provide good cover for protection from predators and harsh weather. Skylark and Lapwing have greatest breeding success in spring-sown cereals when the vegetation is less dense and easier to forage in (as opposed to autumn-sown cereals which limit the number of broods that can be produced). This is in contrast to silage fields where they are threatened by harrowing, or rolling fields. Maintaining set-aside land with little management intervention is especially attractive to invertebrates and small mammals, and can create nesting cover for species such as breeding Lapwing and Skylark.

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The obligations to have set-aside were however removed in 2009: therefore this important fallow habitat has been lost from the countryside. The development of steadings and other old buildings plus the general removal of deadwood has reduced nesting/roosting habitat for species such as owl, House Martin, Swallow and bat. The provision of boxes can help mitigate for this loss.

Hedgerows

Farmland hedgerows are found throughout the lower- and mid-elevational areas of East and West Dunbartonshire and are absent from upland marginal farmland and muirs where they are replaced by drystane walls and fences. Most farm hedgerows are species poor, usually consisting of more than 90% Hawthorn, with occasional Dog Rose, Elder, Holly and Bramble. The dramatic loss of hedgerows in recent times has had a profound effect on biodiversity in rural areas, as hedgerows act as migratory routes between fragmented areas as well as providing necessary habitat for key rural species. For more information on hedgerows please refer to the Woodland Section.

Semi-natural grassland

Two main groups of grasslands are found in Dunbartonshire: neutral grassland and acid grassland. Strictly speaking, neutral grasslands are all grasslands on neutral soils, and consequently include all improved and semi-improved grasslands within Dunbartonshire. Semi-natural grasslands on neutral soils that have not been ploughed or fertilised are most important for wildlife because of their plant species diversity. Within Dunbartonshire, neutral grasslands are of two main types: those on roadside verges dominated by False Oat Grass, which are generally ungrazed; and those on fields, such as old hay meadows, typically very species-rich with Crested Dog's-tail grass as a major part of the sward. Such meadows have a sward that is very diverse with many herbs such as Tufted Vetch, Common Spotted Orchid and Common Knapweed much in evidence. There are also approximately 3ha of lowland hay meadow being managed sympathetically in Twechar. Near Bardowie, an area of approximately 10ha of species-rich neutral grassland was created in 1998 under the Countryside Premium Scheme. Much of this type of grassland has been lost in the last half century and now only some 2,000 to 3,000 ha remain in Scotland (7,000 to 13,000 ha nationally).

Acid grassland is dominated by fine-leaved grasses, typically Common Bent, Sheep's Fescue and Red Fescue. They are often found in association with dwarf shrub heathland and generally develop over nutrient poor, free-draining acid soils on top of rock such as sandstone. Acid grassland occurs on both high and low elevation farms within the Dunbartonshire area, but most of the upland acid grassland forms part of the rough grazing area on the Campsie Fells and Kilpatrick Hills, and so is managed as part of the moorland.

It is estimated that Scotland has less than 5,000ha of lowland acid grassland (JNCC, 2001). The total for Dunbartonshire is probably less than 30ha, which makes this habitat rather rare. Acid grasslands are important habitats for many species of animals, in particular Skylark, Meadow Pipit, Kestrel and Field Vole. They also support large invertebrate populations and are home to many species of fungi. It is important to manage such areas properly, as removal of grazing will revert such grasslands to heath and ultimately scrub, which can have a detrimental effect on biodiversity. Upland acid grassland is fairly extensive in Dunbartonshire and therefore the LBAP actions will focus on lowland acid grassland areas.





Wet grassland

Wet grassland or grazing marsh is defined as pasture that is occasionally flooded, or meadow with ditches that maintain water levels, containing brackish or fresh water. In East and West Dunbartonshire, marshes exist along the floodplain of the Rivers Kelvin and Leven, respectively and are usually grazed by cattle but occasionally by sheep, mainly during the summer months. The remaining stands of wet grassland or grazing marsh within the area are found at Twechar, Bridgend, Inchbelle, Broomhill, north Kirkintilloch, Hayston, Bogton, Balmore Haughs and a small area on the lower River Allander near Temple of Boclair. The habitats associated with grazing marsh vary from reverted improved grassland through wet grassland with Tufted Hair Grass and Yorkshire Fog, to rushy pastures with Soft Rush and Sharp-flowered Rush. This habitat is very important for many species of birds including Lapwing, Curlew, Redshank, Greylag Goose and Pink-footed Goose. The water-filled ditches also provide excellent habitat for Otter, Water Vole, invertebrates (especially dragonflies) and amphibians.

Blanket Bog

Blanket bog is a layer of peat (usually less than 5m thick and averaging 0.5-3m in many areas) covering extensive upland areas. In East Dunbartonshire it is found most extensively on the Campsie Fells and Kilsyth Hills and in West Dunbartonshire it is primarily found on the Kilpatrick Hills. Raised bogs only forms in hollows, while blanket bog is formed on flat land and hill slopes up to 30 degrees as well as in hollows forming a "blanket" that covers the landscape.

The habitat is listed in Annex 1 of the EU Habitats Directive and is subject to special conservation measures in many areas. In Scotland, there has been an estimated 21% reduction in the extent of blanket bog between 1940 and 1980. The greatest single cause of this reduction (51%) is afforestation. Further losses of extent and condition are due to drainage, heavy grazing, peat cutting and air pollution. Locally, the habitat is very variable in quality, having been damaged by fires and overgrazed by livestock.

Blanket bogs have multiple uses: they support a very wide range of terrestrial and aquatic vertebrates and invertebrates. Peat is a significant store of carbon as well as having an important carbon sequestration role when it is in its active state. Blanket bogs also store most of Scotland's drinking water, which is slowly released into our reservoirs. There is evidence that blanket bog in good condition can slow water run-off downstream and reduce the extent of flooding events.

Factors Causing Loss or Decline of Habitats and Species

- Agricultural improvements (e.g. nutrient improvement, short term leys)
- Agricultural mis-management (overgrazing/undergrazing, removal of hedgerows)
- Afforestation of upland areas using exotic conifer plantations
- Building development
- Canalisation of rivers
- Change in practice from ripe cereal harvesting to crimping of unripe crops
- Change in practice from spring-sown crops to winter-sown crops
- Drainage of wet pastures and flood areas
- Herbicide treatment to eradicate weeds from harvested cereals
- Improvements in cereal harvesting efficiency (resulting in less food for birds)
- Infilling
- Invasive species
- Loss of muddy margins and shallow ditches for feeding waders
- Pollution/nutrient enrichment by herbicides and pesticides
- Quarrying operations
- Root damage to hedges through ploughing
- Spreading of slurry that pollutes watercourses/grasslands

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Action Plan Objectives

Objectives

- Promote farm management plans that will benefit biodiversity
- Promote sustainable use of arable/mixed farming for biodiversity
- Promote farmland and farm diversification through training programmes
- Encourage collaborative funding applications to the SRDP
- Safeguard all key grassland sites in Dunbartonshire, but especially those designated as LNRs and LNCS
- Promote peoples' understanding and enjoyment of local semi-natural grassland and wet grassland. Raise awareness amongst the public, planners, developers and land managers of the important contribution that grassland habitats and species make to biodiversity

Rural

O = ongoing, S = short term (2010-2011), M = medium term (2010-2013), L = long term (2010 -)

Target 1: Promote sustainable use of farm habitats and encourage wildlife-friendly working practices		
Action required	Lead Partner(s)	Time-scale
Seek to ensure all relevant landowners/land managers in East and West Dunbartonshire are aware of the Dunbartonshire Local Biodiversity Action Plan through correspondence and direct meetings	EDC, WDC	S
Work with landowners/managers to secure the future of specific priority habitats on their land through the SRDP/SEPA Habitat Enhancement programme. Identify programmes of habitat management and improvement where appropriate. Identify key areas where projects may focus including: watercourses, farmland bird recovery projects using waste end of year grain stocks, pond creation and management, hedgerow management, wetland management for breeding waders and grassland management. Seek to work with 2 landowners in both East and West Dunbartonshire per year on conservation projects	EDC, WDC, RSPB, CARG, CSFT	O
Target 2: Provide free, targeted advisory material to all farmers		
Action required	Lead Partner(s)	Time-scale
Produce basic free advisory material for landowners and managers on management issues and conservation requirements. Emphasise the benefits of organic farming to wildlife	RSPB, EDC, WDC	O
Target 3: Increase our knowledge of priority species found within rural areas in Dunbartonshire		
Action required	Lead Partner(s)	Time-scale
Promote recording of priority species found in rural areas through the Biodiversity Postcard campaign (investigate occurrences of, and promote recording of key species in Dunbartonshire such as Badger, Barn Owl, Black Grouse, Butterfly Orchid, Newt and Water Vole)	EDC, WDC, Glasgow Museums	M
Carry out species surveys on the above to establish current distribution	EDC, WDC, Ind.	M
Explore the possibility of developing a Barn Owl Project	EDC, WDC	M

EDC also includes East Dunbartonshire & Mugdock Country Park Ranger Service





Rural cont'd

	Lead Partner(s)	Time-scale
Target 4: Aim to promote awareness and understanding of the importance of grassland habitats for biodiversity		
Action required Seek to ensure all landowners/land managers of wet grassland and floodplain grazing marsh (especially found within LNCS) are aware of their status and importance for biodiversity, and how they may be managed to benefit nature conservation as well as commercial purposes through direct communication; stress importance of minimising artificial nutrient enrichment in these areas	EDC, WDC	O
Encourage provision for conservation of wet semi-natural grasslands as important habitats for breeding waders	RSPB	O
Seek to ensure key grassland sites are given protection from all adverse developments through local and structure plans	EDC, WDC	O
Target 5: Maintain and increase the area of lowland acid, neutral and wet grasslands in Dunbartonshire		
Action required Seek opportunities to incorporate biodiversity improvements in the construction of flood defences/flood retention areas	EDC, WDC	O
Encourage farmers to apply for entry into the SRDP and specifically for the grassland management options. Aim to incorporate at least 2 grassland management projects per year	EDC, WDC	O

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UKBAP priority species that will benefit from the above actions:

Group A (denotes species for which action plans were written in the EDC LBAP)

Mammals:

Brown Long-eared Bat	Daubenton's Bat	Natterer's Bat
Pipistrelle Bat		

Birds:

Black Grouse	Curlew	Grey Partridge
Lapwing	Linnet	Redshank
Reed Bunting	Skylark	Snipe
Tree Sparrow	Yellowhammer	

Amphibians:

Great Crested Newt

Invertebrates:

Small Pearl-bordered Fritillary

Plants:

Adder's Tongue Fern	Bog Rosemary	Round-leaved Sundew

Group B (denotes new LBAP priority species to East and West Dunbartonshire)

Mammals:

Badger	Otter	Water Vole

Birds:

Barn Owl

Invertebrates:

Bumblebee	Common Blue	Honey bee

Plants:

Greater Butterfly Orchid	Lesser Butterfly Orchid

Group C (denotes species of particular conservation concern, either at the UK or local level, or are known to be vulnerable):

Mammals:

Brown Hare	Common Shrew	Hedgehog
Mountain Hare	Stoat	Water Shrew

Birds:

Bullfinch	Golden Plover	Grasshopper Warbler
Gt Spotted Woodpecker	Green Woodpecker	Greylag Goose
Hen Harrier	House Martin	House Sparrow
Kestrel	Merlin	Peregrine
Pink-footed Goose	Pintail	Redstart
Sand Martin	Sedge Warbler	Short-eared Owl
Song Thrush	Sparrowhawk	Spotted Flycatcher
Swallow	Swift	Teal
Twite	Water Rail	Wigeon
Woodcock		

Amphibians and reptiles:

Adder	Common Frog	Common Lizard
Common Toad	Palmate Newt	Smooth Newt

Invertebrates:

Ladybird spp.	Large Heath	Seven-spot Ladybird
Six-spot Burnet	Small Tortoiseshell	

Plants/Trees: Devil's-bit Scabious, Oak





Habitat Action Plan 3:

Woodland

Woodland and Hedgerows

Dunbartonshire's woodlands and hedgerows are vital parts of the physical landscape that help complement the wide variety of habitats found within the region. Not only do trees and hedges provide shelter and food for an array of animals, they promote the natural growth of under-storey vegetation and plants (such as wildflowers and fungi), produce oxygen for us to breathe and increase the attractiveness of rural and urban areas.

Woodlands form a vital part of many towns and cities, allowing both locals and visitors alike the opportunity to escape to a tranquil setting. Indeed, many urban woodlands either have a good established footpath network, or a series of desire lines, allowing access to those wishing to maintain or improve their health and to enjoy nature. In turn, urban woodlands provide a refuge for a range of animal and plant life that would otherwise not exist within the urban expanse of Dunbartonshire.

The variety, condition and location of trees, woodlands and hedges have a significant impact on the landscape and their biodiversity value. Ancient woodland (that is, areas that have been a forest since at least 1750) are the most valuable woodland habitat type for biodiversity, as they tend to support the greatest diversity of wildlife. Not only are the ages of the trees in the woodland important for biodiversity, but the species and management regime also play a role in determining the range of wildlife the woodland contains. In their natural state, and also combined with wetland features, woodlands can provide habitats for a wide number of animal and plant species. Deadwood is another important habitat for species - mainly invertebrates and fungi - and it is vital in good woodland management to retain both dead standing timber (where safe to do so) along with fallen branches, logs and trunks.

The Scottish landscape has undergone a dramatic transformation over the last Millennia. Scotland was once primarily covered by forest, but has suffered a major loss of native woods, hedgerows and associated vegetation through agricultural expansion. Latterly, woodlands were cut down to provide fuel and materials for the industrial revolution and the First and Second World Wars. More recently further loss can be blamed on development and urban expansion. This unprecedented loss of woodland, accompanied by the intensive grazing of the land with livestock, has resulted in the dramatic change and biodiversity value of our forests.

Scotland's rural landscape is now one of a mosaic-like patchwork, in which intensively cultivated areas are separated by variably sized tree stands (that are themselves exposed to different management regimes), wetlands, upland heaths/moorlands and other habitats of varying quantity and quality. This fragmentation can isolate species even further by reducing opportunities to move through the landscape, and even lead to the extinction of local populations. Wildlife corridors, such as riparian woodlands, rivers and hedgerows that have helped to keep some fragmented habitats connected by functioning as a migratory route for species should therefore be protected and enhanced as much as possible.

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Forestry Commission

After the First World War, the Forestry Commission was set up in 1919 with the sole aim of increasing our country's woodland cover. During the Second World War, the ever-increasing need for timber saw the remaining woodlands planted in the 1800's cut down. In 1945 a new Forestry Act was passed and the Government accepted the principle that there should be five million acres of productive woodland in Britain. To achieve this, intensive establishment regimes were implemented and the predominant species chosen to achieve this was Sitka Spruce. In Scotland, the widespread use of this species instead of natural mixed-species stands has had wide implications for biodiversity. The Forestry Commission has, for some time been looking at the effects on biodiversity of planting uniform stands of non-native species such as Sitka Spruce. Although the harvesting of timber remains important to Scotland's economy, additional focus has been placed on implementing Forest Design Plans to help alleviate the loss of biodiversity in plantations. These plans include the planting of additional areas of broadleaved trees, improving riparian corridors, pond creation and the removal of fast growing species such as Rhododendron and Bracken that out-compete slower growing native plants.

Forests are also being promoted as being important in terms of health, recreation and education, and in the last decade or so there has been a rise in visitor numbers to wooded areas. The creation of community woodlands and other forestry initiatives, in part also due to the work of charities such as Central Scotland Forest Trust and The Woodland Trust Scotland, has greatly increased rural stewardship values and environmental responsibility within communities.

Native Woodland Action Plans

In 2004, the Forestry Commission produced a guidance note on Native Woodland Action Plans in Scotland, in which overall targets were discussed for native woodland creation and expansion in Scotland. These targets were split into Council (or LBAP) areas, to give appropriate types, and levels of expected woodland expansion.

For Dunbartonshire, the targets are listed below:

Forest Commission Indicative Local Targets (ha) for native woodland expansion

	Upland Oakwood		Upland Ashwood		Lowland Mixed Deciduous Wood	
	Expand	Restore	Expand	Restore	Expand	Restore
East Dunbartonshire	10	10	-	-	10	-
West Dunbartonshire	20	-	10	-	10	-
Total	**30**	**10**	**10**	**-**	**20**	**-**





Ancient hedgerows are defined as those that were in existence before the Enclosure Acts, passed between 1720 and 1840 in Britain. Species-rich hedgerows in Scotland may be classified as those that contain, on average, 4 or more native woody species along a 30m length. Hedges that contain fewer woody species, but a rich basal flora of herbaceous plants should also be included in this criterion. The thin, straight Hawthorn hedges that characterise later parliamentary enclosures, as well as most hedges that consist mainly of Beech, Privet or Yew or non-native trees, are classed as species-poor hedges.

Hedgerows are important habitats in their own right. They are a primary habitat for at least 47 extant species of conservation concern in the UK, including 13 globally threatened or rapidly declining species - more than for most other key habitats. They are especially important for butterflies and moths, farmland birds, bats and small mammals. Indeed, hedgerows are the most significant wildlife habitat over large stretches of lowland UK, acting as an essential refuge for a great many woodland and farmland plants and animals.

Over 600 plant species, 1500 insects, 65 birds and 20 mammals have been recorded at some time living or foraging in hedgerows. As they also act as wildlife corridors for many species (including reptiles and amphibians) they allow the dispersal and movement between other habitats, thus being intrinsic to the development of habitat networks across the landscape.

Hedge facts:

- A well-managed 200m length of farm hedge can contain over 20 bird nests.
- A poorly managed 200m length of farm hedge often has one or no nests.
- Most farmland breeding birds (other than waders) rely heavily on hedges for cover, nesting and roosting sites, and for food.
- A well-laid hedge will not need further management for at least 10-15 years

In 1990 it was estimated that Scotland had 33,000 km of hedgerows, resulting from a net loss of hedgerow length by 27% in the period between 1984 and 1990. This loss was due in part to direct removal by land managers, and to abandonment of individual hedge plants and fragmentation.

Legal status:
National forestry policy includes a presumption against clearance of any woodland for conversion to other land uses, and in particular seeks to maintain the special interest of ancient and semi-natural woodland. Felling licenses from the Forestry Commission are normally required if the woods are not already managed under plans approved by them. Some woods and trees may receive additional protection through policies and strategies within development plans, or by being subject to Tree Preservation Orders (TPOs) through the Local Authority. It is illegal to fell, top, lop or uproot trees covered by TPOs without permission from the planning authority, and all felling licences will be sent to the Local Authority for permission.

In Scotland the general protection of hedgerows for nesting birds is covered by the Wildlife and Countryside Act (1981, as amended).

Forestry in Dunbartonshire
In Dunbartonshire, there are approximately 4890 hectares of woodland (1866 ha in East Dunbartonshire, covering 11% of the local authority area, and 3024 hectares in West Dunbartonshire, covering 17% - figures given by Forestry Commission Scotland). Both percentages are above the national average of 10%. 234.43ha (12%) of the woodlands within East Dunbartonshire are classed as Ancient, while one site in Dalmuir (along the Duntocher Burn) is ancient in West Dunbartonshire. A general breakdown of forest type in Dunbartonshire is given below.

	East Dunbartonshire (ha)	West Dunbartonshire (ha)
Broadleaf	44.6	292.8
Conifer	357.6	166.5
Mixed	672.2	924.3
Young	692.1	1505.4

Section 3

The Forestry Commission owns 1614 ha of land in East Dunbartonshire of which 444 ha is woodland. In West Dunbartonshire, the Commission owns 1905 ha of land which 1412 ha is wooded.

East Dunbartonshire Council owns over 40 woodland sites of which around 20% are classed as native in composition, 43% have some native component, whilst the remaining 37% are non-native. Five percent of the total woodland area is classed as amenity grassland including scattered parkland trees. To reflect their valuable woodlands, East Dunbartonshire Council has developed an Urban Woodland Strategy that aims to maintain the existing tree resource, and to establish new urban and peri-urban woodlands and Greenspace. A fully funded 5 year WIAT management programme has been undertaken for 39 Council owned sites. Further information on this can be found in the Appendix 6.

The woodland resource for West Dunbartonshire Council is as yet un-quantified. It would therefore be important to undertake a full audit of council woodland habitat and species so that management and targets within future plans can be prioritised. West Dunbartonshire Council successfully secured funding for woodland management from the Forestry Commission's WIAT scheme in 2009. Sites include Auchentoshan Wood, Auchnacraig & Edinbarnet, Crosslet Wood, Lusset Glen, Overtoun Estate, Pappertwell Community Woodland and The Saltings.

Education and forestry

Activities such as Forest Schools and Eco-schools, which encourage children to use woodlands as an outdoor classroom to learn about nature and the importance of biodiversity, have helped bridge the gap of knowledge about Nature and Conservation by linking fun, educational wildlife activities to the Curriculum for Excellence. By educating the public on why woodlands are important for wildlife, we can help address anti-social behaviour issues relating to such areas and keep up the momentum for sustainable forestry.

Woodland and Hedgerows

In Dunbartonshire, the main causes for concern are the loss of and damage to ancient and semi-natural woodland including wildlife corridors and hedgerows.

Factors Causing Loss or Decline of Habitats and Species

- Agricultural activities and expansion leading to the ripping up of hedgerows and tree removal
- Air pollution and acid deposition
- Climate change
- Damage to woodland through anthropogenic means, such as excessive grazing by sheep or cattle, or disturbance as a result of using woodland areas for shelter
- Development for transport, housing, business, industry and agriculture
- Drift from herbicides and pesticides
- Dutch Elm disease
- Excessive grazing of young shoots and understorey vegetation by vole, deer, rabbit and hare
- Felling without adequate regeneration or replanting/failure to repair gaps left in hedges and loss and non-replacement of mature hedgerow trees
- Fly tipping
- Fragmentation of the landscape
- Heavy recreational use
- Improper management leading to loss of foraging sites for birds, small mammals and insects
- Inappropriate cutting of hedges
- Inappropriate planting and management of Rhododendron, Sycamore and Beech
- Lack of, or inappropriate woodland management
- Lack of deadwood (either standing or on the forest floor)
- Unfavourable changes in management regimes
- Ploughing too close to the base of hedges leading to root damage and ill health of the hedgerow itself





Action Plan Objectives

Objectives

This action plan covers all types of woodland found in Dunbartonshire, and has been written to promote the management of, and where appropriate, the expansion of woodlands in a way that will enhance the environment in accordance with the Scottish Forestry Strategy. The main points of this strategy in relation to biodiversity are to:

- Improve semi-natural woodlands and UK priority woodland habitat types through positive management
- Maintain the resource of ancient woodland in the area
- Extend and enhance woodlands by developing integrated forest habitat networks
- Increase the diversity of the farmed landscape
- Improve the riparian habitat
- Encourage alternatives to clear-felling (where appropriate)
- Improve the quality and setting of urban areas
- Encourage and support interested landowners and land managers to adopt simple cost saving changes in their hedgerow management operations that are beneficial to biodiversity
- Promote regeneration of native trees to replace loss of mature specimens
- Promote the addition of extra hedgerow species to existing hedges when gapping up

In addition, the social aspects of the Scottish Forestry Strategy that could be linked to delivery via this LBAP and funded through the new SRDP are:

- Support of rural diversification and sustaining fragile rural communities
- Added value to the Scottish tourism industry and associated increased benefits to woodland owners and local communities
- Increased opportunities for the acquisition of new skills in forestry, thereby adding to the forestry skills base in Scotland
- Help improving the quality of life to local residents across Scotland
- Increased local engagement with forestry
- Enhanced role of forestry in education
- Provision of easier access to woodlands for all members of the general public
- Increased recreational potential of woodland

These objectives are not expected to stand alone, nor are they prioritised. It is intended that delivery of the Plan will, over time, contribute towards these objectives, the emphasis on each objective varying between projects.

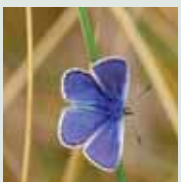
Section 3

Woodland

O = ongoing, S = short term (2010-2011), M = medium term (2010-2013), L = long term (2010 -)

	Lead Partner(s)	Time-scale
Target 1: Expansion of existing woodland and hedgerows as well as protecting the original forest resource		
Action required Implement WIAT funded projects in the area	EDC, WDC	O
Establish programme of work on biodiversity improvements in the Kilpatricks, Auchentorlie Glen, Lennox Forest and Campsie Glen	FCS	L
Seek to acquire and create new native woodland at Maryland Farm; conduct appropriate surveys to take into account foraging resources for Green Woodpecker; conduct botanical surveys	W T, Ind.	L
Target 2: Through council strategies, ensure all ancient/ semi-natural woodlands have LNCS status, or are protected by Tree Preservation Orders (TPOs). Review management operations to take into account biodiversity		
Action required Develop and implement actions as listed in Local Nature Conservation Site Reviews in semi-natural habitats in East and West Dunbartonshire	EDC, WDC	L
Review and increase (if possible) number of trees protected by Tree Preservation Orders	EDC, WDC	M
Develop a programme of council hedgerow management to enhance and improve biodiversity	EDC, WDC	S
Target 3: Write and adopt an integrated habitat network that includes forests as a model habitat, with priorities in place for positive conservation management		
Action required Develop an Integrated Habitat Network project for Dunbartonshire that includes woodland as a priority habitat for expansion and management. Encourage use of a wide range of native species (for example Ash, Aspen*, Birch, Gean, Hawthorn, Hazel, Oak, Rowan and Scots Pine). ** using native clones*	GCVGN, Forest Research, EDC, WDC, BULB	M
Target 4: Increase education and awareness of the forest resource in East and West Dunbartonshire		
Action required Deliver 2 Forest Schools per year in West Dunbartonshire. Investigate potential of delivering a Forest School Leader Training Course (Level 3) to schoolteachers in the Dunbartonshire area	WDC	S

EDC also includes East Dunbartonshire & Mugdock Country Park Ranger Service





UKBAP priority species that will benefit from the above actions:

Group A (denotes species for which action plans were written in the EDC LBAP)

Mammals:

Brown Long-eared Bat	Daubenton's Bat	Natterer's Bat
Pipistrelle Bat		

Birds:

Black Grouse	Linnet	Reed Bunting
Tree Sparrow	Yellowhammer	

Invertebrates:

Small Pearl-Bordered Fritillary

Group B (denotes new LBAP priority species to East and West Dunbartonshire)

Mammals:

Badger

Birds:

Barn Owl

Invertebrates:

Common Blue

Plants:

Bluebell or Wild Hyacinth (not Spanish Bluebell)

Group C (denotes species of particular conservation concern, either at the UK or local level, or are known to be vulnerable)

Mammals:

Brown Hare	Common Shrew	Hedgehog

Birds:

Bullfinch	Grasshopper Warbler	Gt Spotted Woodpecker
Green Woodpecker	House Martin	House Sparrow
Kestrel	Lesser Redpoll	Lesser Whitethroat
Merlin	Redstart	Sedge Warbler
Short-eared Owl	Song Thrush	Sparrowhawk
Spotted Flycatcher	Swallow	Swift
Tree Pipit	Woodcock	

Invertebrates:

Green Hairstreak	Seven-spot Ladybird	Six-spot Burnet
Small Tortoiseshell		

Plants/Trees:

Aspen	Globe Flower	Oak
Spignel	Sweet Woodruff	

Habitat Action Plan 4:

Wetland (including Coastal)

Containing a rich variety of wetland habitats, Dunbartonshire has a fantastic aquatic biodiversity. Examples range from the great historical watercourses such as the River Kelvin and River Leven down to the meandering burns that run through our towns and villages. Some of the rarest and most exciting plant and animal species can be found in and around these environments. They provide areas of calm and relaxation in an otherwise busy landscape, by attracting not only fishermen but outdoor enthusiasts such as canoeists, walkers, ornithologists and budding biologists.

In their natural state wetlands are dynamic environments that create a range of habitats determined by the physical character of the surrounding land. Factors such as slope, substrate and flow rate combine in a myriad of ways to create numerous different habitats. Such diversity is reflected in the wildlife that wetland areas support: from the tiny slow moving dowdy freshwater limpet to the beautiful, lively and exhilarating Kingfisher.

There are very few wetland areas that have not been affected by man at some point through urban creep, industrialisation or agriculture. Water has been used and removed by society for centuries. The results of this manipulation are shown by the landscape we have today. Many valuable wetland areas have been drained and hundreds of kilometres of river banks have been canalised, to make way for agriculture. Industries have used rivers as a means of waste disposal since the beginning of the industrial revolution. Urban expansion of cities and towns has caused the rivers and streams that flow through them to be engineered to a state that is often unrecognisable from their original form. Wetland areas today are much reduced in size and shape, however awareness of their value to society and biodiversity means that they are afforded some protection. With tighter controls on pollution and engineering, wetlands and the biodiversity they play host are being recognised as a vital part of society's well being.

Dunbartonshire incorporates two main catchment areas - the Clyde River Catchment and the Lomond Catchment (see below).

Clyde River Catchment

The Clyde River catchment crosses the boundary of 10 Councils, including East and West Dunbartonshire. The catchment has a surface area of 3,200km2 (of which 26.3km2 is freshwater lochs and reservoirs), and is home to around 30 species of freshwater fish, providing valuable fisheries for Salmon, Trout, Grayling and "coarse" species. Several species are of particular conservation and scientific interest such as River and Brook Lamprey, Three-spined Stickleback and Eel.

The Clyde and its tributaries have slowly been recovering from disturbance by man - pollution, variation in water flow that directly impacts on oxygen levels and temperature, along with changes in the physical shape of both river banks and beds. All have had serious negative impacts on fish species and migration along with quality and quantity of suitable spawning sites.

The Clyde River Foundation is a registered charity that researches the ecology of the Clyde and its tributaries, and promotes environmental education throughout the catchment primarily through the initiative *Clyde in the Classroom*. Such work promotes the sustainable management of the Clyde's aquatic resources and their associated habitats. They have amassed a large amount of fish community data over the years from electro-fishing and netting surveys, which can be used to help inform and support local fisheries management and national initiatives. Research is also being carried out on benthic macroinvertebrates to study the environmental quality of the River Clyde catchment.

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Lomond Catchment

The varied fish assemblages of lochs and rivers within the Lomond catchment area contribute a significant biological and economic resource. Local populations of Powan, Brook, River and Sea Lamprey and Atlantic Salmon have attracted both National and European conservation priority status with designations implemented to attempt to protect them (for example, Wildlife & Countryside Action, 1981; EU Habitats and Species Directives, Annex II). However, there are a great many more fish species present within the catchment and local populations contribute greatly to the biodiversity and general value of the area. Loch Lomond is famed for its Sea Trout and Salmon angling opportunities and in more recent years a growing number of specialist coarse anglers have targeted the large Pike and shoals of other coarse fish that abound. The current list of native fish species requiring appropriate management to ensure their sustainability include Salmon, Sea/Brown Trout, Pike, Perch, Eel and Roach. In addition, there are non-native fish species that have been introduced such as Chub, Dace, Bream, Gudgeon, Tench, Crucian Carp and Ruffe that pose a threat to local biodiversity.

As with all freshwater fishery areas in Scotland, fish populations are coming under increasing pressure from changes to habitat quality and quantity and from overexploitation and introductions of exotic species. Local migratory salmonid fisheries on Loch Lomond have reported declines in catch rates in recent years indicating a reduction in the adult population sizes of both Sea Trout and Salmon.

The lack of data upon which to assess the severity of changes to the Lomond catchment resulted in the production of a Fisheries Management Plan by the Loch Lomond Fisheries Trust (LLFT) in order to develop cohesive recovery strategies. The LLFT works in collaboration with the Scottish Fisheries Co-ordination Centre and the Rivers and Fisheries Trusts of Scotland (RAFTS).

The aim of the LLFT is to restore and re-establish the previous runs of wild migratory fish of note through improving the knowledge of these fish and their habitat at the local level, and then taking positive action on the knowledge gained. The LLFT's Biologist also provides scientific management advice to assist in managing freshwater fish stocks and improving freshwater fishery in the Lomond catchment area. As such the River Leven is expected to gain much attention in the future, with the drawing up of a habitat restoration plan proposed to be written by members of the Dunbartonshire Biodiversity Partnership (lead agencies West Dunbartonshire Council and the LLFT).

Threats to local fish populations include:

- Barriers to fish migration (blocking of channels, litter, fly-tipping, single conduit for migratory fishes between freshwater and marine)
- Flow regulation, water abstraction and engineering downgrading habitat quality
- Habitat degradation leading to local extinctions of important fish species
- Illegal exploitation of salmonid fish
- Introduction of non-native fish species and invertebrates
- Lack of core funds to assist management of the fish and fisheries resource (absence of a District Salmon Fishery Board)
- Lack of information on fish populations, their habitats and pressures
- Lack of spawning sites, riffles and overhanging trees and bushes
- Poaching
- Pollution (e.g. acid rain, nutrient enrichment from agricultural fertilisers, light pollution)
- Poor management
- Sedimentation arising from construction works
- Siltation





Rivers and Streams

Rivers and streams are active habitats, the nature of which is determined by their catchment. In general, the higher the diversity of physical habitats there is in the watercourse catchment, the higher biological diversity will be.

A wide variety of riverine habitats occur in Dunbartonshire, from the small unnamed upland streams in the Campsies to the large deep River Leven that drains Loch Lomond. The corridor of land bordering such watercourses is as valuable to the biodiversity as the water channelled through it. Diverse riverside habitat, such as woodland, wetland and grassland provides appropriate habitat and foraging opportunities for a number of species, while hedgerows along field boundaries link riverbanks with fragmented woodlands and rural areas. In urban cities, the positive management of rivers and flood-plains is critical in controlling erosion and flooding while in rural areas seasonal flooding of fields provide excellent foraging habitats for wildfowl. In the modern day landscape, rivers and their banks are sometimes the only means by which wildlife habitats are linked, with riverine corridors maintaining an element of wilderness and connectivity, even through the middle of cities.

Unfortunately, there have been a number of problems associated with rivers in the recent past such as culverting, removal of riparian habitat, pollution, installation of man-made structures that inhibit fish migration, and poor riverside management. Some issues have been addressed, for example, a combination of improved pollution controls on lighter industries along with better sewage treatment has enabled rivers to return to good levels of cleanliness after many decades of neglect. This has in turn encouraged the return of a number of species that were on the brink of extinction, such as Otter. However much improvement is still needed to be carried out especially with respect to:

- Habitat restoration
- Reduction in pollution
- Improvement of fish spawning sites and clearing of migratory routes
- Removal of culverts/canals
- Removal of litter
- Eradication of invasive species, and
- Protection from development

The Scottish Environment Protection Agency (SEPA), the statutory organisation in charge of regulating river pollution, classifies the majority of rivers in the area as either having excellent, good or fair water quality. There is still the occasional water body that is suffering from pollution but in comparison to even a decade ago the area is doing well. One of the main rivers in Dunbartonshire, the River Kelvin, has been the focus of much attention recently, for this reason.

From 1997 through to 2003, the Kelvin Valley Sewer Project saw the closure of a number of older local sewage treatment works, which discharged into local tributaries of the Kelvin. The sewage from these existing sites was redirected, combined and channelled to Dalmuir STW in Glasgow. Based at the lower end of the catchment, this site is able to process the waste to a much higher standard before discharging into the Clyde estuary. For the rivers and streams that had previously been used to funnel the discharge, this meant a decrease in the amount of organic pollution. As such, SEPA has seen a vast improvement in water quality. Initially it was only through chemical analysis that improvements were noted, with lower ammonia levels and higher dissolved oxygen levels. However, more recently the animals and plants associated with the area have reacted to the improvements in water quality.

Scottish Water has also been investing millions of pounds on upgrading and building new waste water treatment works and systems. This investment programme is long-term and their high level campaign *Bag it and bin it* has been very successful in encouraging local residents to dispose of their waste in a more ecologically-sustainable way. For more information please refer to the website:

www.scottishwater.co.uk/portal/page/portal/SWE_PGP_NEWS/SWE_PGE_NEWS/INFO_HUB_CAMP/INFO_CAMP_BAG

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From a biodiversity point of view these types of improvements are vital. Better water quality encourages a larger diversity of aquatic species. The knock on effect of improvements in water quality can be seen throughout the ecosystems of rivers and streams. A good example of this is the Dipper *(Cinclus cinclus).* The presence of this territorial bird on a burn is dependant on water quality. It feeds almost exclusively on aquatic insects such as mayflies and freshwater shrimp. If the water in a burn is too polluted to support good populations of these invertebrates, the Dipper will not be able to forage and breed successfully.

Lochs, Ponds & Reservoirs

Standing open water includes natural systems such as lochs and pools as well as man-made waters such as reservoirs, ponds and gravel pits. The open waterzone lies beyond the limits of swamp vegetation but may contain submerged, free floating or floating leaved vegetation. Standing waters are usually classified according to their nutrient status (see Appendix 7 for classification types).

The life that depends on freshwater lochs and ponds is abundant and varied. As with rivers and streams, the biodiversity of individual standing waters vary greatly between sites. Lochs and ponds are very rich ecosystems and at their best are the most species rich habitats in the UK. They are also more likely to contain uncommon or rare invertebrate species than riverine habitats.

Lochs, ponds and reservoirs are an integral part of Dunbartonshire's landscape providing recreational opportunities for a huge cross section of the public. Home to some spectacular flora and fauna, people can view a great variety of wildlife within a relatively small geographic area. Of the lochs found in Dunbartonshire a large majority of them are man-made, mainly for drinking water.

Forth & Clyde Canal

The Forth & Clyde Canal was built between 1768 and 1790 and stretches from the Firth of Forth to the River Clyde. Running 15.5km across southern East Dunbartonshire near Auchinstarry to Bishopbriggs in the west, and 8km in West Dunbartonshire from Whitecrook to Bowling, the canal represents a considerable proportion of Dunbartonshire's total area of standing water habitat.

The narrow strip of land occupied by these waterways contains a number of wildlife habitats including slow flowing freshwater in the canal channel, emergent fringing vegetation, towpath grasslands, hedgerows, woodland and scrub, and reedbeds. Although not a natural feature of the landscape, canals can provide an important link with adjacent habitats.

Much of the nature conservation value of canals lies in their wildlife diversity, rather than the presence of particularly rare species. However a number of nationally scarce and protected species can be found e.g. Bat, Otter, Water Vole and Tufted Loosestrife.





COASTAL AREAS

Inner Clyde

On the northern banks of the Inner Clyde estuary, West Dunbartonshire has a comparatively short stretch of coast. The Clyde is one of the most northerly west coast estuaries used by migrating birds, and regularly supports a wintering population of 20,000 waterfowl in the inner estuary, most notably internationally important numbers of over-wintering Redshank. For these reasons, the Inner Clyde Estuary has been notified as a Special Protection Area (SPA) under the EC Wild Birds Directive. The birds of the estuary feed on the Eelgrass, Mussel beds, and on the invertebrate fauna of the intertidal mudflats, sandflats and saltmarsh.

Firth of Clyde Forum
The Firth of Clyde Forum is a voluntary partnership of local authorities, organisations, businesses, communities and individuals committed to working towards integrated, sustainable management of the Firth of Clyde's environmental, economic and community resources. The Forum works closely with the Scottish Sustainable Marine Environment Initiative (SSMEI) to help deliver one of four pilot projects established across Scotland to investigate new approaches to managing Scotland's marine and coastal waters. The SSMEI Clyde Pilot is tasked with the development and delivery of a marine spatial plan for the Firth of Clyde through an effective and integrated stakeholder-regulator partnership. The Forum provides this stakeholder-regulator partnership and acts as the SSMEI Clyde Pilot Steering Group. Further information on the Forum can be found on the website www.clydeforum.org.

Marine Conservation Society - Beach cleans

The Marine Conservation Society (MCS) is the UK charity dedicated to protecting our seas, shores and wildlife. MCS campaigns for clean seas and beaches, sustainable fisheries, protection of marine life and habitats, and the sensitive use of our marine resources for future generations. Through education, community involvement and collaboration, MCS raises awareness of the many threats that face our seas and promotes individual, industry and government action to protect the marine environment.

The MCS Cool Seas Scotland programme includes various public involvement projects running throughout the whole of Scotland, including West Dunbartonshire. Adopt-a-Beach (year round) and Beachwatch (annually in September) involve beach litter cleans and surveys, and are particularly good projects for schools, community groups and local businesses. For more information please refer to the website: www.mcsuk.org/

A tide of cotton bud sticks

The environmental impact of greatest direct relevance to this LBAP is coastal litter. Beachwatch litter surveys in 2004, 2005 and 2006 by MCS volunteers along the shore from Salting to Bowling have revealed high densities of cotton-bud sticks, presumably resulting from untreated stormwater overflows discharging raw sewage and sewage-related debris into the River Clyde from the Greater Glasgow catchment area. Over 10,000 cotton-bud sticks were recorded during Beachwatch 2004 and Beachwatch 2005, and 13,500 cotton bud sticks during Beachwatch 2006.

To put these figures into perspective, for MCS Beachwatch 2006, a total of 77,071 litter items were collected on 63 Scottish beaches (358 UK beaches in total were surveyed), over a total length of 36.846 km. On average 2,091.7 items of litter/km were found, more than the UK average (1,988.7km) for that year. This represented the highest density recorded in Scotland since 1998 (2,713/km). The density of sewage related debris in Scotland (694.5/km) was the highest of any country and over three times the UK average (205.9/km), representing 33.2% of all litter in Scotland. However, if East Bay and The Saltings to Bowling beaches are removed from the analysis, the density of SRD in Scotland falls to 105.5 items/km, which is lower than the UK average. The figures for these two upper Clyde beaches were therefore so high, they skewed all the results for sewage-related debris for Scotland.

Section 3

WETLAND and COASTAL ACTION PLAN

Factors Causing Loss or Decline of Habitats and Species

- Changes to morphology
- Climate change
- Construction and Engineering works
- Diffuse pollution from e.g. roads, old factory sites, housing estates and agricultural land
- Dredging
- Fly-tipping/Vandalism, particularly sewage-related debris
- Grazing on margin edges that is detrimental to biodiversity
- Inappropriate waterway management, mowing of nearby access routes, and tree and hedgerow management
- Invasive plant and animal species
- Low levels of dissolved oxygen during summer months in areas of high weed growth
- Pollution
- Recreational activity that is detrimental to local wildlife
- Use of pesticides to control vegetation
- Waterside developments

Action Plan Objectives

Objectives

- Minimise the area of catchment that is degraded or polluted in Dunbartonshire
- Ensure appropriate conservation management for the aquatic and terrestrial habitat along watercourses, through promotion of riparian corridors as key features for biodiversity
- Promote awareness of the wetland habitat as an asset to maximise its benefit to the public, landowners, and wildlife
- Promote whole floodplain management to reduce the risk of catastrophic flood events to communities and to benefit wildlife and relevant landowners
- Maintain and increase the current area and distribution of ponds*, lochs and reservoirs in Dunbartonshire (*including flood pools, shallow open water pools in wet grasslands etc)
- Improve the cleanliness of West Dunbartonshire's beaches
- Promote sustainable fisheries in Dunbartonshire





Wetland (including coastal)

O = ongoing, S = short term (2010-2011), M = medium term (2010-2013), L = long term (2010 -)

	Lead Partner(s)	Time-scale
Target 1: Raise awareness of the importance of rivers, burns and terrestrial margins. Protect the habitat from all adverse developments/changes in practice through the planning process and Local Plan review		
Action required Seek to ensure all relevant landowners/land managers are aware of the local biodiversity action plan and the value of waterbodies on their land: distribute basic free advisory material for landowners/managers on management requirements, the irreplaceable nature of the habitat, and need for conservation	SEPA, EDC, WDC, LLFT, CRF	O
Identify relevant areas of floodplain through the River Basin Management Plan in order to seek reinstatement of natural floodplain management as a conservation and flood management tool; seek funding to enhance conservation of floodplain areas	EDC, WDC	O
Seek to ensure that adequate consultation takes place when developments are proposed in river catchment systems; do not support canalisation or culverting of rivers	SEPA, EDC, WDC	O
Seek to ensure that pressure is placed on relevant organisations conducting activities within and outwith the region, which impact on river systems e.g. industrial emissions and discharges	SEPA	O
Use planning conditions in delivering biodiversity gains on riverside sites e.g. de-culverting, use of buffer zones to protect wildlife along waterbodies, incorporation of wildlife-friendly designs in underpasses (especially with respect to fish and otter) to enable free passage and resting, native planting along riparian areas, use of appropriate fencing	EDC, WDC	O
Continue "Clyde in the Classroom" programme in Dunbartonshire's schools	CRF	O
Target 2: Adopt the catchment-wide approach to management (River Basin Management Planning)		
Action required Improve water quality where currently poor through the Water Framework Directive by 2015. Working with landowners, begin a programme of waterside habitat management and enhancement. Identify key areas where projects may focus: (i) Prevent further degradation of all watercourses (ii) Prioritise stretches of river, burn and terrestrial margins in order of natural and community importance, and restorability (River Leven, Duntocher Burn, Cochno Burn, lower Allander, Bothlin Burn, upper Glazert Water, entire River Kelvin, Luggie Water and smaller watercourses) (iii) Incorporate the findings of the Clyde River Biodiversity feasibility study into a programme of habitat restoration along the Duntocher Burn (iv) Ensure links are made with other relevant local action plans (e.g. Rural and Urban)	SEPA, LLFT, CRF, EDC, WDC	M
Seek to ensure sources of diffuse pollution are dealt with through the Water Framework Directive	SEPA	O
Form a catchment-wide non-native invasive species forum; conduct audit of invasive species, and include an assessment of threat	EDC, WDC, SNH	M

EDC also includes East Dunbartonshire & Mugdock Country Park Ranger Service

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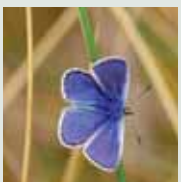
	Lead Partner(s)	Time-scale
Target 3: Ensure appropriate conservation management for the ponds, lochs and reservoirs and their associated terrestrial habitats		
Action required Negotiate with landowners/farmers to secure the future of ponds, lochs and reservoirs and their related species if any of these habitat types occur on their land through the SRDP process.	CARG, FC, EDC, WDC	O
Create at least 10 new ponds in Dunbartonshire by 2012	CARG, EDC, WDC, FC	M
Target 4: Raise awareness of the importance of ponds, lochs and terrestrial marginal habitats. Ensure the habitat is protected from adverse developments/changes in practice to ensure it is not lost or degraded		
Action required Use planning requirements and conditions to enhance biodiversity through practices such as implementing environmentally sustainable drainage schemes such as ponds, swales and retention basins (rather than hard engineered underground solutions) and naturalisation of watercourses. EDC/WDC to identify sites suitable for de-culverting.	SEPA, EDC, WDC	O
Begin a programme of public awareness raising: (i) Incorporate education of the importance of the habitat into the curriculum, including site visits with the Countryside Ranger Service (ii) Encourage public and community involvement in pond management and creation work: provide guidance on pond creation and management that is beneficial to wildlife through inclusion in an advice note	CARG, EDC, WDC, SEPA	O
Encourage all farmers to follow the code of good practice for the Prevention of Environmental Pollution from Agricultural Activity (PEPFAA code) and encourage livestock farmers to use the '4-Point Plan' guidance to minimise pollution	SEPA	O
Seek to ensure that all statutory water quality and discharge standards are maintained, and that 'Total Phosphorus Water Quality Standards for Scottish Freshwater Lochs' policy is followed when setting consent standards for discharges to lochs	SEPA	O





Target 5: Ensure appropriate conservation management for the aquatic and terrestrial marginal habitat of the Forth & Clyde Canal	Lead Partner(s)	Time-scale
Action required		
Identify opportunities for habitat enhancement in the existing canal corridor; Liaise with neighbouring landowners to ensure use of land adjacent to the canal network is sensitive to nature conservation	BW, EDC, WDC	O
Encourage all users to follow the British Waterways Code to reduce littering, environmental degradation, and encourage safe and sustainable use of the canal corridor	BW	O
Use the British Waterways Environmental Code of Practice to ensure the biodiversity of the canal network is considered in the planning of waterway	BW	O
Seek to ensure that the protection of habitats and species of value in the canal corridor is considered as part of all developments on the waterway	BW, EDC, WDC	O

Target 6: To raise awareness of coastal areas and their associated wildlife, and to support and implement marine conservation projects	Lead Partner(s)	Time-scale
Action required		
Promote the Marine Spatial Plan for the Firth of Clyde through stakeholder-regulator partnership.	SSMEI	M
Continue to support existing Marine Conservation Society litter groups in the area, by organising a local MCS Adopt-a-Beach workshop and/or MCS talks to increase awareness of and participation in MCS projects, particularly Adopt-a-Beach. Aim to create one new group in 2011.	MCS, WDC	S
Develop a Cotton Bud Stick education awareness campaign	WDC	M
Promote marine species sighting schemes in the area, in particular jellyfish, through the provision of talks (where there is demand)	MCS, WDC	S
Disseminate MCS materials to interested groups and relevant locations in the area	MCS, WDC	O

Target 7: Develop our knowledge of fisheries in the Lomond catchment area	Lead Partner(s)	Time-scale
Action required		
Produce a "Walk-over" habitat map of the River Leven through surveys, to identify meso-habitat types	LLFT	M
Identify spawning habitat locations and conduct redd counts to evaluate status of juveniles; carry out electro-fishing surveys in the main stem of the River Leven plus tributaries	LLFT	M
Develop programme of Salmon Genetics Study along the River Leven	LLFT	M

Section 3

UKBAP priority species that will benefit from the above actions:

Group A (denotes species for which action plans were written in the EDC LBAP)

Mammals:

Brown Long-eared Bat	Daubenton's Bat	Natterer's Bat
Pipistrelle Bat		

Birds:

Lapwing	Reed Bunting	Redshank
Snipe		

Amphibians and reptiles:

Great Crested Newt

Invertebrates:

Mud Snail

Plants:

Bennett's Pondweed	Round-leaved Sundew	Tufted Loosestrife

Group B (denotes new LBAP priority species to East and West Dunbartonshire)

Mammals:

Otter	Water Vole

Fish:

Atlantic Salmon	Brook Lamprey	Brown Trout/Sea Trout
River Lamprey		

Group C (denotes species of particular conservation concern, either at the UK or local level, or are known to be vulnerable)

Mammals:

Water	Shrew

Birds:

Bullfinch	Dipper	Goldeneye
Goosander	Greylag Goose	House Martin
Kestrel	Kingfisher	Lesser Redpoll
Merlin	Pink-footed Goose	Pintail
Pochard	Red-breasted Merganser	Red-throated Diver
Ringed Plover	Sand Martin	Sedge Warbler
Short-eared Owl	Song Thrush	Sparrowhawk
Swallow	Swift	Teal
Water Rail	Wigeon	

Amphibians and reptiles:

Common Frog	Common Toad	Palmate Newt
Smooth Newt		

Invertebrates:

Dragonfly spp.	Ladybird spp.	Seven-spot Ladybird
Small Tortoiseshell		

Plants:

Eight-stamened Waterwort	Six-stamened Waterwort





Priority species affected by the Action Plans

Group A

Mammals:

Brown Long-eared Bat	*Plecotus auritus*
Daubenton's Bat	*Myotis daubentonii*
Natterer's Bat	*Myotis nattereri*
Pipistrelle Bat	*Pipistrellus pipistrellus/Pipistrellus pygmaeus*

Birds:

Black Grouse	*Tetrao tetrix*
Curlew	*Numenius arquata*
Grey Partridge	*Perdix perdix*
Lapwing	*Vanellus vanellus*
Linnet	*Carduelis cannabina*
Redshank	*Tringa totanus*
Reed Bunting	*Emberiza schoeniclus*
Skylark	*Alauda arvensis*
Snipe	*Gallinago gallinago*
Tree Sparrow	*Passer montanus*
Yellowhammer	*Emberiza citrinella*

Plants:

Adder's Tongue Fern	*Ophioglossum vulgatum*
Bennett's Pondweed	*Potamogeton x bennettii*
Bog Rosemary	*Andromeda polifolia*
Round-leaved Sundew	*Drosera rotundifolia*
Tufted Loosestrife	*Lysimachia thyrsiflora*

Amphibians:

Great Crested Newt	*Triturus cristatus*

Invertebrates:

Small Pearl-bordered Fritillary	*Boloria selene*
Mud Snail	*Lymnaea glabra*

Group B

Mammals:

Badger	*Meles meles*
Otter	*Lutra lutra*
Water Vole	*Arvicola terrestris*

Birds:

Barn Owl	*Tyto alba*

Fish:

Atlantic Salmon	*Salmo salar*
Brook Lamprey	*Lampetra planeri*
Brown Trout	*Salmo trutta*
River Lamprey	*Lampetra fluviatilis*

Invertebrates:

Bumble Bee	*Bombus spp.*
Common Blue	*Polyommatus icarus*
Honey Bee	*Apis mellifera spp.*

Plants:

Bluebell or Wild Hyacinth	*Hyacinthoides non-scripta*
Greater Butterfly Orchid	*Platanthera chlorantha*
Lesser Butterfly Orchid	*Platanthera bifolia*

Group C

Mammals:

Brown Hare	*Lepus europaeus*
Common Shrew	*Sorex araneus*
Hedgehog	*Erinaceus europaeus*
Mountain Hare	*Lepus timidus*
Stoat	*Mustela erminea*
Water Shrew	*Neomys fodiens*

Section 3

Birds:

Bullfinch	*Pyrrhula pyrrhula*
Dipper	*Cinclus cinclus*
Golden Plover	*Pluvialis apricaria*
Goldeneye	*Bucephala clangula*
Goosander	*Mergus merganser*
Grasshopper Warbler	*Locustella naevia*
Great Spotted Woodpecker	*Dendrocopos major*
Green Woodpecker	*Picus viridis*
Greylag Goose	*Anser anser*
Hen Harrier	*Circus cyaneus*
House Martin	*Delichon urbica*
House Sparrow	*Passer domesticus*
Kestrel	*Falco tinnunculus*
Kingfisher	*Alcedo atthis*
Lesser Redpoll	*Carduelis cabaret*
Lesser Whitethroat	*Sylvia curruca*
Merlin	*Falco columbarius*
Peregrine	*Falco peregrinus*
Pink-footed Goose	*Anser brachyrhynchus*
Pintail	*Anas acuta*
Pochard	*Aythya ferina*
Red-breasted Merganser	*Mergus serrator*
Redstart	*Phoenicurus phoenicurus*
Ringed Plover	Charadrius hiaticula
Sand Martin	*Riparia riparia*
Sedge Warbler	*Acrocephalus schoenobaenus*
Short-eared Owl	*Asio flammeus*
Song Thrush	*Turdus philomelos*
Sparrowhawk	*Accipiter nisus*
Spotted Flycatcher	*Muscicapa striata*
Swallow	*Hirundo rustica*
Swift	*Apus apus*
Teal	*Anas crecca*
Twite	*Carduelis flavirostris*
Tree Pipit	*Anthus trivialis*
Water Rail	*Rallus aquaticus*
Wigeon	*Anas penelope*
Woodcock	*Scolopax rusticola*

Amphibians and Reptiles:

Adder	*Vipera berus*
Common Frog	*Rana temporaria*
Common Lizard	*Lacerta vivipara*
Common Toad	*Bufo bufo*
Palmate Newt	*Triturus helveticus*
Smooth Newt	*Triturus vulgaris*

Invertebrates:

Dragonfly spp.	*Order: Odonata*
Green Hairstreak	*Callophrys rubi*
Ladybird spp.	*Coccinella spp.*
Large Heath	*Coenonympha tullia*
Seven-spot Ladybird	*Coccinella septempunctata*
Six-spot Burnet	*Zygaena filipendulae*
Small Tortoiseshell	*Aglais urticae*

Plants/Trees:

Aspen	*Populus tremula*
Devil's-bit Scabious	*Succisa pratensis*
Eight-stamened Waterwort	*Elatine hydropiper*
Globe Flower	*Trollius europaeus L.*
Hairy Stonecrop	*Sedum villosum*
Oak	*Quercus robur L. and Quercus petraea*
Six-stamened Waterwort	*Elatine hexandra*
Spignel	*Meum athamanticum*
Sweet Woodruff	*Galium odoratum*





Biodiversity in your local area... do a little change a lot.

Finally…how can local residents help Biodiversity?

Biodiversity can be fun! There are many ways local residents can help wildlife. Below are some tips on how to improve biodiversity in your home, school, work and at leisure. Simple changes to old habitats, such as recycling and becoming more “eco-” aware can help with problems such as waste management and pollution, and allow us to lead a more sustainable way of life.

Below are some simple, low or no-cost ideas on how you can help biodiversity.

Tips on how to help Dunbartonshire's wildlife

In your home, school or at work

Use more recycled and environmentally-friendly products in the home and garden: consider re-using and/or refusing plastic bags, and replace with cotton or jute bags for life. Create, or become a part of a community plastic bag-free initiative.
Make and use your own compost from biodegradable waste from your kitchen
Plant up an insect-friendly flower window box at work or school

Encourage your local school, hospital, or housing complex to create and manage a wildlife area. Become a ‘landlord’ - encourage summer visitors such as Swift, Swallow, or House Martin to nest on your building by providing a suitable nest box. Feed the birds, during the summer and winter - nuts and seed rolled in fat are ideal. Avoid using bread as this can be low in nutrition and do not provide the birds with the energy they require to grow and breed

Learn more about Scottish Water’s “Bag it and Bin it” campaign, and dispose of your personal items responsibly. Plant nectar rich flowers and trees to help the local bee population

Eco-Schools

Participation in the Eco-Schools project provides pupils with opportunities to take decisions on environmental issues for themselves and raise pupil awareness of significant issues such as improving the school environment, reducing litter and waste, increasing environmental awareness, reducing fuel & water bills, improving links with the local community, and gaining business support.

The main aim of the programme is to make environmental awareness and action an intrinsic part of the life and ethos of the school. The Eco-school programme:

- *Encourages whole-school action for the environment*
- *Is a recognised Award Scheme, rewarding and accrediting schools committed to improving their environmental performance*
- *Is a Learning Resource, raising awareness of sustainable development & citizenship issues through active involvement*

As well as project work linked to Eco-Schools, there are numerous opportunities for linking the work involved in the Eco-Schools programme into the curriculum - from ages 3 to 18. In particular, many cross-curricular areas such as PSD, citizenship, health, Sustainable Development and global issues/links can be addressed.

Many local schools promote the recycling of paper, plastic bottles and cans as well as mobile phones and ink cartridges which help to raise money for a variety of charitable causes. They are also helping biodiversity through wildlife garden projects, composting, building bat and bird boxes, planting bog gardens, butterfly gardens and surveying a whole host of species within their environments. For more information on this please refer to the Urban Section of this LBAP.

Section 4

Building in your home

If you are thinking of making changes to your home, such as adding an extension, working on your roof or garage, along with carrying out work on trees and hedges, it is important to know the relevant legislation in place that protects local wildlife. If you have any doubts, contact either the Planning department or Biodiversity Officer of your local Authority, or Scottish Natural Heritage (Clydebank Office).

If you are going to be carrying out work on your house, please bear in mind the following tips:

a) Check the area for birds or bats. For example, all wild birds, their active nests and eggs are protected by the Wildlife & Countryside Act 1981, while bats are protected by the Wildlife & Countryside Act 1981 and by the Conservation (Natural Habitats) Regulations 1994. Bats, which are European Protected Species, return to the same place (or "roost") each year. Both bats and their roosts are protected (even if the roost is not being occupied at the time by bats). Scottish Natural Heritage will be able to provide advice on any of the above.

b) Avoid working on your roof during the bird-breeding season (March to September, see above for relevant legislation). House Sparrow generally nest under eaves, in wall crevices or ivy growing on the outside wall, while Swift build nests under soffits, or just inside the roof. Swallow will nest inside buildings, while House Martin use outside walls for nesting. Barn Owl will utilise outhouses, but will not build a formal nest – consider incorporating a Barn Owl ledge in the gable end as part of your renovation if you live near open countryside.

In your garden

Gardens are key sites which play host to a myriad of creatures, if properly managed. Collectively, a network of private gardens can form vital habitat corridors, allowing the safe movement and protection of species. Tips include:

Create a wildlife haven - leave areas to grow wild. Build simple habitat piles of logs and branches to encourage hedgehogs, toads and a variety of insects.

Give a helping hand - buy/build bird, bat and hedgehog boxes - put out food and water for birds throughout the winter. Encourage bats into your garden by planting scented species such as Evening Primrose, Night-scented Stock and Lavender that are attractive to insects. Bats on average can eat up to 3,000 midges a night!

Recycle your garden waste in your brown bin.

Plant Scottish trees, shrubs and flowers - they'll provide food and homes for insects, birds and small mammals. Hebe, Lavender, Honeysuckle, and Buddleia, along with flowers such as Candytuft, Nasturtium, Aubrieta and flowering herbs will help attract bees, butterflies, birds and bats. In small gardens, Crab Apple, Rowan, Hazel, Holly and Bird Cherry will provide nectar-rich blossom or catkins that will be attractive to insects, or provide nuts for birds and mammals. Encourage your workplace or school to do the same.

Do you really need a fence? Why not plant an "edible" hedge that will provide you with a boundary while at the same time help wildlife. Edible native species such as Crab Apple, Bird Cherry, Hawthorn, Blackthorn or Rowan are ideal for hedges. Large native hedgerow trees such as Hazel, Ash or Oak can be especially attractive. All will provide shelter and roosting sites for birds. If you have a Privet hedge, allow this to flower as it is a good source of nectar for insects. Avoid mowing any grass growing at the base of the hedge, as this can help provide shelter for vole, hedgehog and insects.





If you do have a fence, consider growing fragrant species such as Honeysuckle, Nasturtium, Clematis, Sweet Pea and Rose. Cotoneaster and Ivy can also provide food or roosting sites, while hanging baskets can be turned into an ideal Wren nest!

Benefits of an urban hedge:

- Provides nesting and foraging for insects, small mammals and birds
- Acts as a miniature wildlife corridor
- Visually attractive
- Can provide nectar for a number of species e.g. our declining bumblebee population, butterflies etc.
- Helps in reducing noise, by acting as a sound barrier

Restore or create a pond in your garden that is both child friendly and contains a number of different levels to attract a variety of species. Surround the pond with rough grass and log piles to help protect amphibians when they are on land.

If you wish to tidy up your pond, the ideal time to do this would be in late autumn and early winter, i.e. outside of March-September which is the main breeding season for invertebrates and amphibians. To avoid disturbing the wildlife in your pond, aim to clear out one-third of the pond every year.

Look out for Great Crested Newt in your pond - they are European Protected Species, and so any work to the pond and handling of newts would have to be carried out under special licence from the Scottish Government.

Use peat-free compost - both in the garden and for houseplants - help save non-renewable rare bog habitats.

Before burning leaves in the autumn, check the pile first for hedgehogs.

Collect rainwater using a water butt for use in the garden.

Remember that trees provide us with oxygen and are very important for providing habitat and food to a wide variety of wildlife. They can also be useful for reducing noise levels, by acting as a natural barrier for noise to bounce off. If you wish to remove any trees from your garden, it is important to check that you are not in a Conservation Area, or the trees are not afforded protection under a Tree Preservation Order. If in doubt, contact the local Tree Officer within your Local Authority.

In the neighbourhood

If you enjoy golf, why not encourage your local golf club to take part in the Scottish Golf Course Wildlife Initiative?

Together with your local Community Council or Residents' Association, why not adopt an area for wildlife, and manage it in such a way that it will encourage wildlife for all ages to enjoy. Community Woodlands can be a wonderful way in which locals can take a disused piece of ground and transform it into a rich, attractive habitat.

Help implement the actions by volunteering for any of the Habitat Action Plans – everyone is welcome to help.

Church groups can become involved by transforming their local church space into a haven for biodiversity. Initiatives such as the increasingly popular Eco-congregation scheme (http://www.ecocongregation.org/scotland) can help revitalise church grounds, help encourage community participation and positively impact on biodiversity.

Section 4

At Leisure

Use your local Countryside Ranger Service - learn more about the local countryside and its wildlife.

Join and help a conservation group – see new places, learn about your environment, take part in wildlife surveys and keep fit at the same time.

Avoid buying souvenirs on holiday that exploit the natural world.

Support ‘green tourism’ holidays and stay or eat in agri-touristic accommodation/ restaurants. Air travel uses up a large amount of fossil fuels and creates pollutants that contribute to global warming. Limit the amount of journeys made by air, and aim to live a carbon-neutral life as much as possible.

Pick up your litter, as it can be dangerous to wildlife, and also because it makes a place look messy and uncared for.

Leave wild flowers for everyone to enjoy.

Report any wildlife crime to your local Wildlife Crime Officer, Strathclyde Police.

Biodiversity Postcards

The Dunbartonshire Biodiversity Partnership recently published a series of Biodiversity Postcards to encourage local residents to get involved in improving biodiversity in their area, along with highlighting species of particular interest. Such postcards are available by contacting the Biodiversity Officer (biodiversity@eastdunbarton.gov.uk or biodiversity@west-dunbarton.gov.uk).

....and finally

Did you know that you can help biodiversity when you are gone? Consider making arrangements for a meadow land burial. As well as having a biodegradable coffin, your final resting place will be in a wildflower-sown grassland setting, with no obtrusive paths or headstones.

Useful websites

There are a number of websites that can give creative ideas on making your home and garden more environmentally friendly (see list below). The majority of the organisations regularly produce publications that can be used in the home or at school.

Bat Conservation Trust: **www.bats.org.uk/**

British Trust for Conservation Volunteers: **www.btcv.org/**

British Trust for Ornithology: **www.bto.org**
- this website gives instructions on how to build 20 types of nestbox.

Butterfly Conservation Scotland: **www.butterfly-conservation.org**

Glasgow & South West Scotland Branch: **www.southwestscotland-butterflies.org.uk**

Central Scotland Forest Trust: **www.csft.org.uk**

Clyde Bat Group: **www.clydebatgroup.co.uk/**

Flora Local: **www.floralocale.org**

Forestry Commission Scotland: **www.forestry.gov.uk/scotland**

Joint Nature Conservancy Council: **www.jncc.gov.uk**

Marine Conservation Society: **www.mcsuk.org**

National Biodiversity Network: **www.nbn.org.uk/**

National Farmers Union: **www.nfu.org.uk/**

National Trust for Scotland: **www.nts.org.uk**

Plantlife: **www.plantlife.org.uk**

Royal Society for the Protection of Birds: **www.rspb.org.uk/wildlife/wildlifegarden**
- 'A to Z' of a wildlife garden'

Scottish Agricultural College: **www.sac.ac.uk**

Scottish Badgers: **www.Scottishbadgers.org.uk**

Scottish Environment Protection Agency: **www.sepa.org.uk**

Scottish Executive: **www.scotland.gov.uk/environment**

Scottish Executive biodiversity website: **www.scotland.gov.uk/biodiversity**

Scottish Natural Heritage: **www.snh.gov.uk** - 'Gardening for Life' series of leaflets

Scottish Ornithologist's Club: **www.the-soc.fsnet.co.uk/**

Scottish Water: **www.scottishwater.co.uk**

Scottish Wildlife Trust: **www.swt.org.uk/**

Soil Association: **www.soilassociation.org/**

UK Biodiversity Website: **www.ukbap.org.uk/**

Wildlife & Countryside Link: **www.wcl.org.uk**

Wildlife Gardening: **www.wildlife-gardening.co.uk**

Appendix

Appendix 1 East Dunbartonshire Local Biodiversity Plan (2005) Species and Habitat Action Plans

Species Action Plans	Partners Involved (Lead first)
Adder's Tongue Fern	EDC, MCP, BSBI
Bennett's Pondweed	BW, EDC
Bog Rosemary	EDC BSBI
Juniper	MCP, BSBI, MCP, PS
Round-leaved Sundew	EDC, BSBI
Tufted Loosestrife	EDC, BW, BSBI
Bats	LBG, EDC, SNH, MCP
Black Grouse	RSPB, EDC, FCS
Farmland Birds I (waders)	EDC, RSPB, BTO, FWAG, CRG
Farmland Birds II (non-waders, including Grey Partridge)	EDC, RSPB, FWAG, SAC, SNH, CRG
Great Crested Newt	EDC, CARG, SEPA
Mud Snail	EDC, SW, SEPA
Small Pearl-bordered Fritillary	BC, EDC, MCP
Habitat Action Plans	
Farmland (general)	EDC, CRF, SEPA, FORK, FWAG, SAC, CE, SLF, NFUS, SEERAD
Farmland I	EDC, FWAG, SAC, SLF, NFUS
Farmland II (arable)	EDC, FWAG, SAC, SLF, NFUS
Floodplain Grazing Marsh	FWAG, SAC, EDC, SEPA
Forth & Clyde Canal	BW, EDC, SEPA
Golf Courses	SGEG, EDC, SEPA, SNH
Ponds, Lochs and Reservoirs	EDC, FWAG, SAC, SNH, SEPA
Raised Bog	EDC, SNH
Rivers, Burns & Terrestial Margins	EDC, FWAG, CRF, FORK
Semi-natural Grasslands	FWAG, SAC, EDC, SNH
Urban	EDC, SNH
Wetlands	EDC, FWAG, SAC, SNH
Woodland	EDC, FWAG, CSCT, FCS
Habitat Statements	
Blanket Bog	
Quarries, Bings and Sandpits	
Reedbed	
Scrub	

Appendix 2 Scottish Forestry Strategy

The new Scottish Forestry Strategy was produced in October 2007, following an extensive review of the previous strategy. It is based on four key principles:

- Sustainable development, underpinned by sustainable forest management;
- Social inclusion, through helping to provide opportunities for all, and helping to build stronger communities;
- Forestry for and with people; and
- Integration with other land uses and businesses.

Actions have been devised under 7 themes: Climate Change, Timber, Community Development, Environmental Quality, Business Development, Access & Health, and Biodiversity. A suite of Implementation Plans has been written to ensure that these actions are taken forward. The Biodiversity Implementation Plan 2008-2011 details ambitious plans to:

- Bring at least 3,000ha of designated woodland features and 3000ha of other native woodlands into management towards favourable condition.
- Bring at least 1,000ha of non-native PAWS into restoration towards native woodland to help meet HAP targets and develop habitat networks.
- Publish costed management programmes for key woodland species: Juniper, Pearl-bordered Fritillary and Chequered Skipper.
- Publish a final set of Red Squirrel stronghold sites after consultation.
- Develop advice and guidance for Scottish Rural Development Programme applicants on woodland management for priority conservation species and invasive non-native species.
- Develop and implement Rural Development Contract measures and guidance for restoration of open habitats.
- Recognise the importance of woodlands of high conservation value in revised Scottish planning policy on natural heritage.
- Publish revised guidance on use of Ancient Woodlands Inventory.

In addition, the SFS lays out regional targets. For Central Scotland, these are focused on the Climate Change, Community Development and Biodiversity themes. The main biodiversity action is to develop and deliver priority Integrated Habitat Networks projects in Central Scotland, based on the outcomes of the Glasgow & Clyde Valley Green Network and the amalgamation of the Edinburgh & Lothians and Falkirk networks (lead partner: Central Scotland Forest Trust).

Appendix





Appendix 3 Statutory framework

- The National Parks and Access to the Countryside Act 1949 introduced the concept of National Nature Reserves (NNRs) and Sites of Special Scientific Interest (SSSIs), that are areas of importance for their flora, fauna, geology or landform features. This Act also conferred powers on local authorities to establish Local Nature Reserves (LNRs).

- The Countryside (Scotland) Act 1967 strengthened the powers conferred under the 1949 Act and imposed on every public body a duty to have regard to the desirability of conserving the natural heritage of Scotland in the exercise of their functions relating to land.

- The Wildlife and Countryside Act 1981 (as amended) strengthened the protection accorded to SSSIs, provided additional safeguarding for particular types of areas, and restricted the killing, taking from the wild and disturbance of various species. A wide range of wild animals and plants are protected under the Wildlife and Countryside Act 1981. The deliberate killing, injury or taking of protected species, or damage, destruction or obstruction of places used by such species for shelter or protection is an offence under the Act unless the action is the incidental result of a lawful action and could not reasonably be avoided.

- The Natural Heritage (Scotland) Act 1991 established Scottish Natural Heritage and charged it with responsibility for protecting, enhancing and facilitating the enjoyment of Scotland's natural heritage.

- Protection of Badgers Act 1992 was written to protect badgers against harm and sett disturbance, primarily as a result of badger baiting activities. A licence must be obtained from SNH where development would result in interference with a badger and/or a sett.

- The Town and Country Planning (Scotland) Act 1997 consolidated the statutory framework for the control of development. It requires that development plans include measures for the conservation of natural beauty and amenity and the improvement of the physical environment.

- The Nature Conservation (Scotland) Act 2004, provides opportunities for all public bodies to take steps to meet their new obligations to further the conservation of biodiversity.

Key international obligations are identified below:

- The Ramsar Convention on Wetlands of International Importance, especially Waterfowl Habitat (Cm 6464) requires the conservation of wetlands, especially sites listed under the Convention.

- The EC Council Directive on the Conservation of Wild Birds (79/409/EC) (the Birds Directive) provides for the protection of all wild birds and their habitats within the European Community. It requires Member States to take measures to preserve a sufficient diversity of habitats for all species of wild birds naturally occurring within their territories in order to maintain populations at ecologically sound levels, and to take special measures to conserve the habitats of rare and migratory species.

- The EC Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EC) (the Habitats Directive) contributes to the conservation of biodiversity by requiring Member States to take measures to maintain or restore the conservation status of natural habitats or species across the territory of the Community.

- The EC Council Directives on the Assessment of the Effects of certain Public and Private Projects on the Environment (85/337/EC and 97/11/EC) require environmental assessment to be carried out before a decision is taken on whether development consent should be granted for certain types of projects likely to have significant environmental effects.

- The Conservation (Natural Habitats &c.) Regulations 1994 place a statutory duty on planning authorities to meet the requirements of the Habitats Directive. The EC Directive on Environmental Assessment (85/337/EC) as amended by Directive 97/11/EC also seeks to ensure that a formal environmental statement must be prepared where a development is likely to have significant effects on the environment. The Town and Country Planning Environmental Assessment (Scotland) Regulations 1999 brought this amended directive into force, superseding the Environmental Assessment (Scotland) Regulations 1988.

- Measures to protect our coastline - Scottish Marine Bill

  The Scottish Government published the document *Sustainable Seas for All - A Consultation On Scotland's First Marine Bill* which included the following proposals:

  - Improved conservation to sustain healthy populations of Scotland's unique marine wildlife, including international populations of important seabirds
  - Details of a new marine planning system, with streamlined licensing that encourages economic investment in areas such as renewable energy
  - Plans to ensure the sustainability of Scotland's traditional and new marine industries
  - The formation of Marine Scotland that would bring together the expertise of existing organisations that would work to protect and promote Scotland's seas

  This legislation is important to better manage human activities around our coast in order to minimise conflict between sectors and safeguard the marine environment on which these activities depend. The legislation proposed to establish a single organisation, Marine Scotland, to manage Scotland's seas.

Appendix





Appendix 4 Local Plan policies of relevance to biodiversity in East and West Dunbartonshire

Key Local Plan policies for the environment include:

East Dunbartonshire Local Plan (adopted 2005)

Open Space and Recreational Land
- OS 1 Maintenance & improvement of existing parks and open spaces
- OS 2 Existing Parks and Open Spaces
- OS 3 Provision of new or enhanced open space and recreational land

Green Belt
- GB 1/GB 2 Green Belt

Design Quality
- DQ 3 Assessment of Impact
- DQ 12A Sustainable Urban Drainage Systems
- DQ 12B Drainage Impact Assessment

Natural Environment
- NE 1 Natural Environment Strategies
- NE 2A Natural Environment Protection – Protected Sites
- NE 2B Enhancement of Sites of Nature Conservation Interest
- NE 2C Native Planting
- NE 3 Greenspace Strategy
- NE 4 Landscape Character
- NE 4A Campsie Fells Regional Park
- NE 4B Campsie Fells and Kilpatrick Hills Regional Scenic Areas
- NE 5A/5B Designed Landscapes and Historic Gardens
- NE 6A Tree Protection
- NE 6B Trees in the Landscape and Community Woodlands
- NE 6C Tree planting

Tourism
- TO 4C Campsie Fells, Clachan of Campsie and the Kilpatrick Hills
- TO 4F Mugdock Country Park
- TO 4G Milngavie Reservoir Complex

Appendix

West Dunbartonshire Local Plan (Finalised draft 2007)

General Development
- GN 1 Green Network
- GB 1 Green Belt
- WC 1 Wider Countryside
- RSA 1 Regional Scenic Area
- SUS 1 Sustainable Development
- GD 1 Development Control
- GD 2 Redevelopment Opportunities

Economic Development
- LE 9 Agricultural Diversification

Housing
- H 4 Housing Development Standards

Environment
- E 1 Biodiversity
- E 2A International Nature Conservation Sites (Natura 2000)
- E 2B National Nature Conservation Sites (SSSI)
- E 3A Local Nature Conservation Sites
- E 4 Tree Preservation Orders
- E 5 Development Affecting Trees
- E 6 Woodland Strategy
- E 7 Woodland and Parkland retention
- E 8 Environmental Improvement Opportunities
- E 9 Landscape Character
- BE 1 Conservation Areas and Article 4 Directions
- BE 7 Gardens and Designed Landscapes

Open Space, Access and Recreation
- R 1 Retention of Open Space
- R 2 Open Space Provision
- R 3 Enhancement of open space and sports facilities
- R 4 Forth & Clyde Canal
- R 5 Access Opportunities
- R 6 Golf Courses

Public Services
- PS 4 Waste Management

Development Control
- DC 6 Renewable Energy
- DC 7 Micro-renewable energy in new developments
- DC 8 Minerals

Flooding and Sustainable Urban Drainage
- F 2 Waste Water, Sustainable Urban Drainage, Drainage Impact Assessment and Culverts





Appendix 5 East Dunbartonshire Biodiversity Grants Scheme

To help the implementation of LBAP projects in East Dunbartonshire, members of the Dunbartonshire Biodiversity Partnership are eligible to apply for grants from the East Dunbartonshire Biodiversity Grants Scheme. The level of grant available is based on the projected spend and outcomes (generally 50% to 75%), however grants of up to 100% of the total project costs are available at the discretion of the Grant Awards Advisory Board. The maximum amount available for a single project is £2000. For West Dunbartonshire, no such grant scheme is available at the present time, and consequently external funding is required to implement projects in the area.

Appendix 6 Urban Forests in East Dunbartonshire

Urban woods are becoming an ever increasingly important habitat for wildlife in constant threat from encroaching development. In addition, they provide a landscape backdrop and distinctiveness to local areas, and allow excellent opportunities for recreation and environmental education.

Ancient semi-natural woodland is the most important type of woodland within East Dunbartonshire, comprising 20% of the 31 woodland WIAT areas surveyed. There are currently around 370 TPOs in East Dunbartonshire Council and they vary in size between those covering individual trees to those comprising a group, area or woodland. One particular TPO (TPO 5 Bearsden) comprises some 185 individuals TPOs. The Council has, however, delivered a high quality service in terms of management of requests for tree works including giving professional advice in this regard and in respect of protection and planting of new trees in landscaping proposals for new developments.

Urban Woodland Strategy

East Dunbartonshire Council has produced an Urban Woodland Strategy that will help fully complement the range of Council policies. Having a well- managed urban woodland positively contributes to sustainable development and integrates with key Council objectives that relate to biodiversity, greenspace, community involvement, economic development, health, access, recreation and cultural agenda.

The main drivers for the development of the East Dunbartonshire Urban Woodland Strategy were:

- Concern that the existing urban woodland resource were not being properly maintained or managed, particularly in the face of continued budget cuts.
- The need to address, in an integrated manner, the urban woodland resource in relation to other Council plans and policies relating to health, access (core footpath networks), recreation and the continued implementation of the East Dunbartonshire Greenspace Strategy.
- To involve key stakeholders and user groups in the development of the Strategy and the resultant outputs from Strategy implementation including Management Plans.
- A desire to assess the potential for an urban woodland habitat network by identifying areas for urban woodland expansion.
- The availability of external funding through the SRDP and WIAT to help address the issues raised above.

In essence the Urban Woodland Strategy is founded on the following principles:

Environmental Sustainability
Integration and
Positive value

Within this context, three Strategic Directions and seven Priorities for Action have been identified:

Strategic Development

- To ensure that the urban woodland resource is positively managed (and where possible expanded) to maintain and enhance its natural heritage, landscape and cultural value
- To create opportunities for more people to enjoy and be engaged with the urban woodland resource
- To help communities benefit from the urban woodland resource

Priorities

- To ensure positive management and expansion of the urban woodland resource
- To help ensure public engagement with urban woodlands
- To ensure community engagement in decision making and management input processes that relate to the urban woodland resource

Actions

1. Improve the management of East Dunbartonshire's urban woodlands
2. Expand the urban woodland resource by developing an Urban Woodland Habitat Network
3. Improve the setting of existing and new urban developments
4. Maintain, upgrade and provide new opportunities for urban woodland recreation
5. Increase interpretation and education facilities
6. Increase opportunities for community consultation over decisions taken about the management of the urban woodland resource
7. Increase opportunities for greater community, stakeholder and user group involvement in the management of the urban woodland resource

The Urban Woodland Strategy has been formulated with the aim of maintaining the existing tree resource in addition to establishing, where possible, new peri-urban woodland and greenspace areas. Connecting and creating new areas of urban woods are key priorities of Local Plans, and by adopting an integrated approach would help address the effects of fragmentation of wooded landscapes on biodiversity

Appendix





Appendix 7 Definition of nutrient status of ponds and threats to watercourses

Oligotrophic (nutrient poor) waters are poor in plant nutrients and are typical of northern and western Britain. They generally have clear water with low plankton cover and little diversity of flora and fauna. These lochs tend to be found in geological areas of hard igneous rock and poor soils leading to poor levels of nutrients (in particular phosphorus). Lily Loch in the Kilpatrick Hills is the only recognised oligotrophic loch in Dunbartonshire.

Mesotrophic (intermediate nutrient status) waters are relatively uncommon in the UK, and are critically dependant on nutrient levels such as inorganic nitrogen and total phosphorus. Such waters never reach very high or low nutrient, levels and as such can have the highest levels of biodiversity of any standing waters. Typically they have clear water containing a higher proportion of nationally scare and rare aquatic plants. Macro invertebrates are well represented including indicator groups such as dragonflies, water beetles, stoneflies and mayflies. As an increasingly rare type of lake, this habitat has its own UK HAP. Bardowie Loch is one of the few examples in Dunbartonshire.

Eutrophic (nutrient rich) waters are naturally rich in plant nutrients, though many receive additional input from agricultural or sewage discharge. Eutrophic waters can support a large amount of vegetation, and commonly plankton is found in abundance. These lochs tend to be found in lower lying areas with base rich soils that supply high levels of nutrients. The majority of lochs in Dunbartonshire belong to this category, with Mugdock Reservoir and Craigmaddie Reservoir being prime examples. The best example of a eutrophic loch in the district is Caldarvan Loch that holds SSSI status. This site is well known for supporting a well established sedge-swamp community.

Threats to Watercourses in more detail:

Pollution

Water quality and pollution control fall under the remit of SEPA. Through European instruction in the form of the Water Framework Directive, transposed into Scottish law as the Water Environment and Water Services Act, they have the ability to impose rectification notices and fines on polluters. The table below shows a summary of the main water management issues in Scotland (taken from the SEPA publication *Significant water management issues in the Scotland River basin district*).

Pressure type	Key sectors
Diffuse source pollution	Agriculture Forestry Urban development Sea and coastal water transport
Point source pollution	Collection and treatment of sewage Aquaculture Manufacturing Refuse disposal Mining and quarrying
Abstraction and flow regulation	Electricity generation Public water supplies Agriculture
Changes to morphology	Historical engineering Agriculture Electricity generation Urban development Land claim Sewage/water pipes
Invasive alien species	All sectors

Appendix





Some of the main causes of pollution in Dunbartonshire relate to:

Diffuse pollution

Examples: Contaminated run-off from streets and yards, the deposition of acid pollutants from air, leaks or overspills from the sewerage system, run-off of pesticides and soils and nutrients caused by agriculture and forestry.

Point source pollution

Examples: Discharges from factories and sewage treatment works, overflows from sewers during heavy rain and inputs from fish farms.

Abstractions and flow regulation (impoundments)

Examples: Hydropower and water supply schemes which take water from one catchment and divert it to another, the building of dams and weirs and the drilling of boreholes to extract groundwater.

Changes to morphology (i.e. transformation of the physical structure of water bodies)

Examples: Engineering works that straighten rivers, building work on flood plains or estuary mudflats and land use practices such as intensive livestock farming, which can degrade vegetation and lead to riverbank erosion.

Non-native species

There are a number of species of plants, animals and fish that have invaded the rivers of Dunbartonshire. Several plant species are already well established. Japanese Knot-weed, Giant Hogweed and Himalayan Balsam have all been recorded in the area, while American Mink has contributed to a significant decline in the number of Water Vole.

Construction and Engineering works

Economic development pressures are still high throughout the catchment area. Present high costs of land result in developers minimising the area taken up by river corridors. This can result in watercourses being squeezed and manipulated into minimal channel dimensions and sometimes being culverted altogether, which severely negatively impacts on biodiversity. Developers who are carrying out construction works near watercourses must ensure they use sedimentation traps in order to protect water quality.

Public attitudes

Although one of the most interesting and diverse habitats the UK has to offer, there are still some sections of the public that perceive river corridors to be waste ground. Fly tipping and litter is a major problem in certain areas of Dunbartonshire and is detrimental to habitat quality and general attractiveness. Negative discrimination on rivers and streams can also be formed with many associating such habitats with rats, midges or unpleasant odours. Even though the water quality of some streams can be poor, cognisance should always be given to the fact that many act as major wildlife corridors and provide invaluable riparian habitats to a number of flora and fauna.

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Other formats and translations

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