Cardiff
LBAP
2008

Local Biodiversity Action Plan 2008

Cyngor Cefn Gwlad Cymru
Countryside Council for Wales

CARDIFF
CAERDYDD

Cardiff Biodiversity Partnership
Partneriaeth Bioamrywiaeth Caerdydd

Noddir gan Lywodraeth Cynulliad Cymru
Sponsored by Welsh Assembly Government

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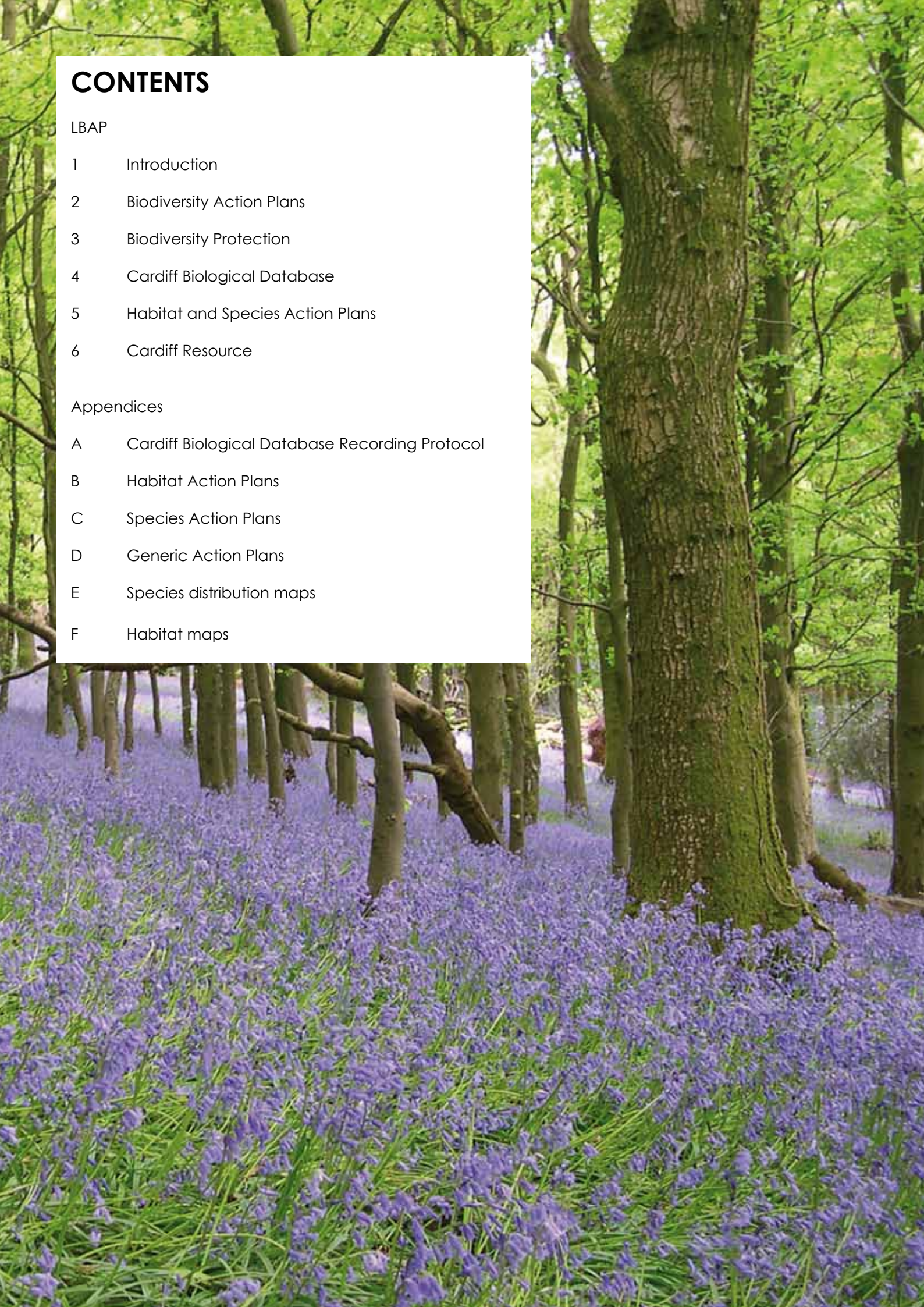


1. INTRODUCTION

1.1 The Cardiff Council executive meting of 4th December 2008 resolved that the document 'Wild About Cardiff' be replaced with the Cardiff Local Biodiversity Action Plan 2008. It gives a brief outline of the LBAP system, wildlife protection, biological recording and the Cardiff resource (the presence/extent/distribution of habitats and species). Habitat Action Plans (HAPs), Species Action Plans (SAPs) and Generic Action Plans are explained and attached in appendices.

1.2 The LBAP forms part of a package of documents and databases that evidence and describe Cardiff's biodiversity resource, together with setting out measures for its conservation, management and enhancement. This package includes:

- Cardiff Local Biodiversity Action Plan 2008 - this document as explained above.
- Biodiversity Supplementary Planning Guidance. Part 1 outlines how the Council will implement development plan policies relating to biodiversity, including how it will assess planning applications which could have an impact on biodiversity interests, the information applicants will need to provide to enable this, and the legislative framework within which the Council must operate. Part 2 outlines the biodiversity/nature conservation resource of Cardiff, including designated sites such as European designated SPAs and SACs, nationally designated SSSIs and locally designated SINCs. It also sets out the Councils biodiversity priorities.
- Cardiff Biological Database. This database held by the Council contains selected species records submitted to Cardiff Council. The species recorded are selected on their conservation status both nationally and locally (see Appendix A for recording protocol).
- Biodiversity of Cardiff booklet. This is an introduction to biodiversity in Cardiff in the easily accessible form of a booklet and is aimed at people who have an existing interest in natural history and want to learn more. It has been written to help readers discover the variety of life in Cardiff and beyond. It contains descriptions of Cardiff's main habitats and introductions to its geology and biological recording. It also outlines the LBAP process, protected sites and species and how to get involved in nature conservation.

1.3 For details of any sections of the package please contact the Environmental Advice Team in Cardiff Council or see **www.cardiff.gov.uk/biodiversity**.

2. BIODIVERSITY ACTION PLANS

2.1 In 1992 the UK government signed up to the Convention of Biological Diversity at the Earth Summit in Rio de Janeiro, Brazil. As part of this commitment the UK Biodiversity Action Plan (UK BAP) was produced in 1994. This included hundreds of Habitat Action Plans (HAPs) and Species Action Plans (SAPs).

2.2 The implementation of the UK BAP is supported by the UK Biodiversity Partnership Standing Committee. The UK Biodiversity Research Advisory Group (BRAG) and UK Biodiversity Reporting and Information Group (BRIG) support the Standing Committee. BRAG provides information about biodiversity research priorities and co-ordination in the UK. BRIG maintains the relevance of the UK list of HAPs and SAPs. In 2007 BRIG put forward the new HAP and SAP list containing 65 habitats and 1149 species. More information on the UKBAP can be found at www.ukbap.org.uk.

2.3 In Wales, the Wales Biodiversity Partnership (WBP) coordinates the UK BAP. It filters information down to the Local Biodiversity Partnerships who facilitate the Local Biodiversity Action Plans (LBAPs). See www.biodiversitywales.org.uk for more information.

2.4 Regional groups support local partnerships and coordinate work with larger organisations such as the Forestry Commission and Environment Agency. Cardiff is supported by the Glamorgan Biodiversity Advisory Group and the Greater Gwent Biodiversity Action Group.

2.5 In 2001 Cardiff Council adopted "Wild About Cardiff" the Local Biodiversity Action Plan. This has now been supplemented by a range of HAPs and SAPs written specifically for Cardiff. These include habitats and species of UK, Wales and local importance. The plan is facilitated by the Cardiff Biodiversity Partnership (CBP) which is made up of individuals and organisations who are interested in conserving biodiversity in Cardiff. The CBP meets three times a year and runs projects to implement the HAPs and SAPs.

3. BIODIVERSITY PROTECTION

Legislation

3.1 The UK has some of the most stringent wildlife controls in the world, however, many of our scarcest species are under threat because of illegal activities. While the global trade in endangered species has a high profile, wildlife here in the UK is also under constant threat from criminal activities. In the UK wildlife crime involves the illegal trade in endangered species and damage to protected UK species and habitats.

3.2 Several European Protected Species are found in Cardiff along with sites designated as Special Areas of Conservation, Special Protection Areas and Sites of Special Scientific Interest.

3.3 Outlined below are the most relevant pieces of legislation. For more information see the Cardiff Council Biodiversity Supplementary Planning Guidance Part 1.

- EC Council Directive on the Conservation of Wild Birds, 1979 (The 'Birds Directive')
  This applies to wild birds, their eggs, nests and habitats. The habitats of certain rare and vulnerable birds and regular migratory species are to be conserved by special measures including designating and protecting areas of habitat known as Special Protection Areas (SPAs).

- EC Council Directive on the Conservation of Natural Habitats of Wild Flora and Fauna, 1992 (The 'Habitats Directive')
  The Directive aims to conserve vulnerable habitats and species through designating sites as Special Areas of Conservation (SACs). Together with the SPAs these sites form part of the EC Natura 2000 network of Sites of Community Interest, significant in a pan-European context.

- Wildlife and Countryside Act 1981 (as amended)
  Together with its amendments this Act remains the key document in UK wildlife legislation. It provides the basis for the legal protection of specified plants and animals and the designation of National Nature Reserves and Sites of Special Scientific Interest (SSSI). The schedules list flora and fauna with varying levels of protection.

- The Conservation (Natural Habitats etc) Regulations 1994 (the 'Habitat Regulations') as ammended
  This Statutory Instrument formally transposes the EC Habitats Directive into British Law.

- The Countryside and Rights of Way Act 2000 (CRoW Act)
  This Act gives biodiversity conservation a statutory basis and requires government departments to have regard for biodiversity in carrying out their functions. It also increases protection for SSSIs. It brings the Wildlife and Countryside Act up to date and provides stronger penalties for offenders.

- Natural Environment and Rural Communities Act 2006 (NERC Act)
  This Act created a new integrated agency in England - Natural England - to act as champion for the natural environment. One of the most important elements of the Act is its extension of the CRoW biodiversity duty to all public bodies and statutory undertakers. Section 42 requires the National Assembly for Wales to publish a list of species and habitats of principal importance for the conservation of biodiversity in Wales; this replaces the section 74 list in the CRoW Act.

Wildlife Crime

3.4 All instances of wildlife crime should be reported directly to the police. There is currently one full-time Wildlife and Environmental Crime Officer seconded to the Countryside Council for Wales. This officer is supported by a network of Wildlife Officers stationed throughout South Wales.

3.5 In 2006 the National Wildlife Crime Unit was launched. This is a police-led, standalone, multi-agency unit which gathers intelligence on wildlife crime and provides analytical and investigative support to police and customs officers. The website provides information on wildlife crime including how to report it: **www.nwcu.police.uk/**.

The Planning System

3.6 Biodiversity is protected through the planning system by the implementation of legislation and policy. In addition to the legislation outlined above, Local Planning Authorities must adhere to national and local policy and guidance when executing their functions.

3.7 Legislation and Assembly policy and guidance in respect of biodiversity is set out in Planning Policy Wales (2002) and Technical Advice Note 5: Nature Conservation and Planning (1996). Individual Unitary Authorities have policies in their Development Plans relating to nature conservation and biodiversity. In 2006 Cardiff adopted its own Biodiversity Supplementary Planning Guidance (SPG). More information on policy relating to Cardiff can be found in the Biodiversity SPG.

Locally Designated Sites

3.8 Planning Policy Wales (2002) recommends the designation of non-statutory sites of interest for nature conservation (SINCs). In 2004 the Gwent Wildlife Trust published the Guidelines for the Selection of Wildlife Sites in South Wales.
Modifications for Cardiff have been developed and can be found in Part 2 of the SPG. The sites are called Sites of Importance for Nature Conservation (SINCs) in Cardiff and the Council are committed to a review of all sites at least once every ten years, with at least 10% of sites reviewed each year.

4. CARDIFF BIOLOGICAL DATABASE

4.1 Cardiff Council holds a database of flora and fauna recorded in Cardiff - the Cardiff Biological Database (CBD). The database contains nearly 100,000 records and is added to daily. These records are used to inform planning decisions, site management and the LBAP. As many species have little or no significance in the planning or LBAP process a recording protocol has been developed for the CBD in order to keep the contents relevant and easily accessible (see Appendix A). Species recorded now include:

- European Protected Species (EPS) and those protected in the UK which are a material consideration in the planning system
- species listed as of 'principal importance for the conservation of biological diversity' by the Welsh Assembly Government (referred to as Section 42) or are priorities in the UK BAP or LBAP. Some species are omitted from this if they are policy or research only a
- species which contribute to designation as a Site of Importance for Nature Conservation (SINC)
- species which are rare, or of particular interest, in Cardiff
- non-native 'problem' species.

[a]See the Biodiversity Reporting and Information Group report to the UK Biodiversity Partnership - Report on the Species and Habitat Review. June 2007.

5. HABITAT AND SPECIES ACTION PLANS

5.1 The UK Biodiversity Action Plan includes a List of Priority Habitats and Species. In 2007 the list was reviewed and grew to 65 habitats and 1149 species. Each habitat and species on the list will have specific targets to be met in order to reverse the decline of biodiversity in the UK. These targets filter down through the country and regional level to the individual LBAPs. The LBAPs then contain Habitat and Species Action Plans (HAPs and SAPs) which outline the local targets and actions that need to be taken in order to meet these.

5.2 The habitats and species included in an LBAP may not all be UK priorities but can be included for local reasons, for example a species on the edge of its range. The Cardiff HAPs and SAPs make up part of this document. These have been written for the species and habitats in most need of conservation action in the area. There are often recurring themes in the HAPs and SAPs which warrant plans of their own. Therefore, Generic Action Plans are produced to cover these, such as Awareness Raising and Wildlife Crime.

5.3 An annual assessment of plans will take place where completed plans can be removed and new ones added in consultation with the Cardiff Biodiversity Partnership (CBP). See Appendix B and C for the Cardiff HAPs and SAPs and Appendix D for the Generic Action Plans.

Species Statements

5.4 Many species will benefit from enhancement of habitats alone. These can be catered for through the HAPs where they will either be Associated Species or they will have their own Species Statements. Species Statements do not have targets but outline the conservation status of a species and its specific habitat requirements. Actions will then be identified which can be undertaken as part of the HAP.

5.5 Species statements will be prepared when considered necessary in consultation with the CBP and will be reviewed in the same way as HAPs and SAPs.

Biodiversity Action Reporting System - BARS

5.6 "The Biodiversity Action Reporting System (BARS) is a web-based information system that supports the planning, monitoring and reporting requirements of National and Local Biodiversity Action Plans." (www.ukbap-reporting.org.uk)

5.7 The system has 3 main uses:

- A centralised database for the regular UK BAP reporting rounds
- An organisational tool for LBAP partnerships
- A public database of BAP work underway in the UK

5.8 The system is free to use but anyone inputting information must have user access rights. All of the Cardiff HAPs and SAPs are on BARS. The system can be interrogated to report in many different ways. It will be used by the CBP to monitor progress toward HAP and SAP targets.

6. CARDIFF RESOURCE

6.1 This section lists the known UKBAP and Section 42 species and habitats in Cardiff. As species distributions and levels of local knowledge/expertise are constantly changing, this list will be reviewed annually in light of new information. It will inform the Cardiff Biological Database recording protocol and be instrumental in deciding which habitats and species have action plans in Cardiff.

Species

6.2 The list currently covers vertebrates. Due to the large numbers of species and difficulties in identification of invertebrates, plants and fungi, the Cardiff Biological Database lacks a sufficiently comprehensive list of these species present in Cardiff. There is also insufficient data to accurately assess the status of listed marine species in the Cardiff area. Distribution maps for Cardiff's SAP species can be seen in Appendix E. However, the following notable UKBAP/Section 42 listed species are known to occur:

Species		UK BAP	S42	Status
Date-Coloured Waxcap	*Hygrocybe spadicea*	✓	✓	Known from 1 site in Bute Park but not recorded since 2004
Garden Tiger	*Arctia caja*	✓	✓	
Small Heath	*Coenonympha pamphilus*	✓	✓	
Small Blue	*Cupido minimus*	✓	✓	
Ghost Moth	*Hepialus humuli*	✓	✓	
Grayling	*Hipparchia semele*	✓	✓	Found on brownfield sites in the south but scarce.
Wall	*Lasiommata megera*	✓	✓	
Stag Beetle	*Lucanus cervus*	✓	✓	Formerly known from a garden in Roath but grubs recently found at Forest Farm.
White Letter Hairstreak	*Satyrium walbum*	✓	✓	
Chalk Carpet	*Scotopteryx bipunctaria*	✓	✓	After an absence of 80 years has recently been found in the Taff Gorge
The Cinnabar	*Tyria jacobaeae*	✓	✓	

List of UKBAP/Section 42 bird, mammal, amphibian and reptile species known to occur in Cardiff:

Birds

Species		UK BAP	S42	Status
Skylark	*Alauda arvensis arvensis/scotica*	✓	✓	Resident, breeds in grassland throughout the area
Tree Pipit	*Anthus trivialis*	✓	✓	Passes through Cardiff on migration
Lesser Redpoll	*Carduelis cabaret*	✓	✓	Winter visitor, no longer breeding in area
Common Linnet	*Carduelis cannabina subspp. autochthona/cannabina*	✓	✓	Common resident, particularly in the bay area.
Twite	*Carduelis flavirostris subspp. bensonorum/pipilanus*	✓	✓	Not recorded in Cardiff since 1989
Ringed Plover	*Charadrius hiaticula*		✓	Common winter/passage visitor along the coast
Hawfinch	*Coccothraustes coccothraustes*	✓	✓	Secretive and scarce species apparently confined to forestry above the M4. Cardiff is the stronghold of the species in the Glamorgan area.
Common Cuckoo	*Cuculus canorus*	✓	✓	Recorded in Spring but increasingly scarce. No longer breeds in Cardiff.
Lesser Spotted Woodpecker	*Dendrocopus minor subsp. comminutus*	✓	✓	A secretive species, however, breeding has been confirmed in recent years. Most reliably recorded in Bute Park but also present north of the M4
Yellowhammer	*Emberiza citronella*	✓	✓	A scarce species, mainly found in the north and east particularly near the Caerphilly ridge. Breeding status unknown.
Reed Bunting	*Emberiza schoeniclus*	✓	✓	Common resident breeder
Kestrel	*Falco tinnunculus*		✓	Common resident breeder
Pied Flycatcher	*Ficedula hypoleuca*		✓	Breeding restricted to Coed-y-Bedw but other woodlands have potential to hold pairs.
Herring Gull	*Larus argentatus subsp. argentatus*	✓	✓	Abundant. Breeds on roofs in the city centre and several hundred pairs breed on Flat Holm
Black-headed Gull	*Larus ridibundus*		✓	Common winter visitor
Bar-tailed Godwit	*Limosa lapponica*		✓	Spring and Autumn migrant on passage

Black-tailed Godwit	*Limosa limosa limosa*	✓		Spring and Autumn migrant on passage
Grasshopper Warbler	*Locustella naevia*	✓	✓	Last recorded in Cardiff in 2000

Amphibians and Reptiles

Species		UK BAP	S42	Status
Slow-worm	*Anguis fragilis*	✓	✓	Widespread but under recorded
Common Toad	*Bufo bufo*	✓	✓	Widespread but under recorded
Common Lizard	*Lacerta vivipara*	✓	✓	Widespread but under recorded
Grass Snake	*Natrix natrix*	✓	✓	Widespread but under recorded
Great Crested Newt	*Triturus cristatus*	✓	✓	The stronghold is in the St Fagans area but isolated populations exist in central and northern areas
Adder	*Vipera berus*	✓	✓	Mainly confined to the south facing slopes along the north

Habitats

6.3 Habitats are dynamic and can change over time, or be artificially changed. The two main sources of information on Habitats in Cardiff are the Phase 1 study from the 1990s and Priority Habitats of Wales. Priority habitat maps for Cardiff can be seen in Appendix F.

Habitat	Priority Habtiats	UK BAP	S42	Amount in Cardiff
Broadleaved, mixed and yew woodland	Wood pasture and parkland	✓	✓	The woodland in Cardiff is a mix of there categories and totals 600ha[b].
	Upland oak woodland	✓	✓	
	Lowland beech and yew woodland	✓	✓	
	Wet woodland	✓	✓	
Boundary and linear features	Hedgerows	✓	✓	Unknown
Arable and horticultural	Arable field margins	✓	✓	Unknown
Improved grassland	Coastal and floodplain grazing marsh	✓	✓	520 Ha[b]
Neutral grassland		✓	✓	291ha semi-improved[c]
	Lowland meadows	✓		4ha[b]

Calcareous grassland		✓	✓	1ha[b]
Acid grassland		✓	✓	6ha[b]
Fen, marsh and swamp	Purple moorgrass and rush pastures (Rhos pasture)	✓	✓	12ha[b]
River and Streams	Rivers	✓	✓	Unknown
Standing open water	Ponds	✓	✓	186 ponds[d]
Supralittoral rock	Maritime cliff and slope	✓	✓	2.64ha coastal grassland 1.11ha hard cliff[c]
Littoral Rock	Sebellaria alveolata reefs	✓	✓	Unknown
Littoral sediment	Coastal saltmarsh	✓	✓	34ha[b]
	Intertidal mudflats	✓	✓	Unknown

[b]Figures taken from Jones, P.S., Stevens, D.P., Blackstock, T.H., Burrows, C.R. and Howe, E.A. (2003) *Priority Habitats of Wales: a technical guide*. CCW

[c]Figures taken from the Phase 1 Habitat Survey of Wales, JNCC 1992

[d]Figures taken from Cardiff Council digital mapping data 2007

Protocol for Recording on the Cardiff Biological Database

Introduction

The Cardiff Biological Database (CBD) contains nearly 100,000 records of animals and plants at sites across Cardiff. The database is continually updated with new records. The data is stored on an MS Access-based database called Recorder 2002. These records are used to inform planning decisions, the Local Biodiversity Action Plan (LBAP) and site management.

Records come from many different sources and have often been recorded in an ad-hoc manner. It can therefore sometimes be difficult to assess the status of a particular species from the data in CBD. Species with few records may be under-recorded simply because they are so common rather than because they are rare. Alternatively, rare or unusual species may attract a lot of attention and therefore generate disproportionately more records. This protocol therefore clarifies which species and sites should be recorded.

Data Quality

The majority of records on the database are considered to be reliable. However, some records may be unreliable, either because of a lack of information or in some cases the identification of a species is incorrect. All new records are verified by either the Environmental Advice Team or the relevant taxonomic recorders for difficult groups.

All biological records require four essential pieces of information:-

- Species
- Location, preferably including a six-figure grid reference
- Date (preferable at least the month)
- Name of the person, company or society who recorded the data

Prioritising Data Collection

There are potentially many thousands of new records every year. However many of these are of little or no significance in the planning or LBAP processes. They would therefore not make a useful contribution to the management of the CBD. In order to maximise the efficient use of the CBD, collection of data is prioritised to those sites and species which have most relevance to the exercise of Council's functions in relation to the planning system, the LBAP and site management.

Access to Database

Cardiff Council will provide extracts from the CBD to individuals, organisations and companies upon request. However, in the case of certain sensitive species the supply of some records may be restricted.

Protocol for Recording

Data collection is targeted on those species which meet one of the following criteria:

- Protected Species which are a material consideration in the planning system (Planning Policy Wales 2002).
- Species which are listed as being of 'Principal importance for the conservation of biological diversity' by the Welsh Assembly Government (Section 42 Species), or are priorities in the UK Biodiversity Action Plan or LBAP. *1
- Species which contribute to designation as a 'Site of Importance for Nature Conservation' (SINC) as listed in the 'Guidelines for the

selection of Wildlife Sites in South Wales' as modified in the Cardiff Biodiversity Supplementary Planning Guidance.
- Species which are rare, or of particular interest, in Cardiff.
- Non-native 'problem' species.
- However many priority species added in the 2007 UK review are listed for policy or research only. As they include many common species such as Dunnock and Herring Gull these will not be prioritised for data collection.

*1: Many priority species added in the 2007 UK review are listed for policy or research only. These include many common species such as Dunnock and Herring Gull are therefore not priorities for data collection.

The list of animals meeting these criteria has 188 species; the plant list has 968 species, including 'lower plants' such as mosses, liverworts, lichen, fungi and stoneworts.

In addition to those species which are priorities for data collection other species will be recorded were surveys are targeted at complete taxonomic groups (such as birds, waxcaps, plants etc) for specific sites e.g. Cardiff Bay Wetland Reserve. In the case of birds and mammals species will be recorded in cases were their status is of local interest.

Site Locations

In order to minimise duplication, existing site names and grid references should be used. For designated nature conservation sites these were first listed in the Cardiff Nature Conservation Strategy (1995). For other sites names and grid references of existing sites in the Recorder 2002 database should be used. In cases where the boundary is unclear a new site or sub-site may be added. Most sites should be given a six-figure grid-reference based on a site centroid. Sub-sites, small sites such as ponds or some botanical and fungal records and may need an eight-figure grid reference. Conversely, very large sites, or records of mobile fauna (such as flight records of birds) may be recorded to only a four-figure grid reference. All grid-references should be at least four figures, identifying a 1 km grid square. Names for new sites should be in accordance with nearest geographical features named on the Ordnance Survey 'Mastermap' system.

Site Recorders

Records will normally be attributed to the individual(s) who detected the animal or plant concerned. Where records are submitted without having been attributed to an individual, for example where a commercial ecological consultancy has undertaken the survey work, then the name of the company or organisation responsible for the work will be entered.

Taxonomic Level

All records should be at the level of species wherever possible. Where this is not possible, e.g. for closely-related species which are particularly difficult to distinguish, there may be value in recording the Genus or Family only.

Council Surveys

The Environmental Advice Team of Cardiff Council undertake several different types of site visits and surveys:

SINC surveys

These are surveys to establish if a site meets the criteria for designation as a 'Site of Importance for Nature Conservation' (SINC). Most of these visits are made as part of a rolling program of surveys which aim to ensure that every site is re-surveyed at least once every ten years. Potential new SINCs are also included in this survey programme.

Biodiversity Action Plan surveys

Surveys for priority species and habitats are undertaken as part of the implementation of Species Action Plans (SAPs) and Habitat Action Plans (HAPs).

Project site visits

Some site visits are undertaken to assess whether a site is suitable for a particular project, or to assess to progress of a project.

Planning consultation visits

Site visits are made in relation to planning applications or pre-application consultations.

Data from other sources

The input of data from other sources should follow the same protocols as for data from the Environmental Advice Team. Where members of the public submit unsolicited records, particularly in connection with ongoing planning applications, the records must be verified by the Environmental Advice Team and/or the relevant local specialist before being entered. Records of species which are rare or difficult to identify should also be verified by the relevant local specialist recorders before being entered on the database. Records from reports supplied by consultant ecologists engaged by developers may be entered, provided that permission has been obtained to do so, and relevant local specialists can attest to their accuracy.

CALCAREOUS GRASSLAND HABITAT ACTION PLAN FOR CARDIFF

1. INTRODUCTION

Calcareous grasslands develop on soils overlaying alkaline geology such as Carboniferous Limestone, Chalk. The soils tend to be shallow, well-drained, have a pH above 7 and lack nutrients. The result of these conditions is a distinctive, rich and diverse flora.

The conditions needed for these grasslands to develop are sometimes created by human activities. This can include rock exposure from quarrying and road cutting, or the creation of grasslands on post industrial land.

There are 13 different types of calcareous grassland, recognised through their distinct flora. The UK BAP priority habitats split these into upland and lowland categories, this action plan deals with lowland grasslands including the National Vegetation Communities (NVC) CG1 to CG9. Characteristic species include Quaking Grass, Meadow Oat-Grass, Upright Broom, Tor Grass, Wild Thyme, Salad Burnet, Rockrose, Lady's Bedstraw, Kidney Vetch and a number of Orchid species. The NVC communities in Cardiff are currently unknown.

Like other grassland types agricultural improvement impoverishes the floristic value of a site.

Many invertebrate species are associated with Calcareous grassland and in Cardiff the area in the Taff Gorge is particularly important for the nationally scarce Chalk Carpet moth.

This plan deals with natural sites, a separate Action Plan has been written for post industrial grasslands.

2. CURRENT STATUS

2.1 UK Status

In the 2005 reporting round there were 40,594 hectares of unimproved lowland calcareous grassland (UK BAP priority habitat) in the UK with 1146 in Wales.

2.2 Cardiff Status

Priority Habitats Wales identified 1ha of lowland calcareous grassland, including unimproved and semi-improved, in Cardiff.

A very small area of calcareous grassland is found in the Taff Gorge. It is here that the Chalk Carpet moth is found.

3. MAJOR FACTORS AFFECTING THE HABITAT IN CARDIFF

- Habitat loss/degradation – agriculture:
  - Intensive grassland management.
- Habitat loss/degradation – extraction
  - Aggregate extraction - land
- Habitat loss/degradation - succession
  - Natural succession
- Pollution - atmospheric
  - Nitrogen deposition

4. CURRENT ACTION

See www.ukbap.org.uk for lead partner actions (unimproved calcareous grassland only)
See www.ukbap-reporting.org.uk for local action progress

5. TARGETS

5.1 Wales Targets

All targets to be achieved by 2015

Target type	Hectares
Maintain	1146
Achieve condition	782
Restore	17
Expand	48

5.2 Cardiff's Targets and Actions

Lowland Calcareous Grassland (UK priority)

Target 1 Target Goal	Maintain lowland calcareous grassland in Cardiff Maintain 1ha of lowland calcareous grassland in Cardiff.
Action 1 Action Goal	Identify extent of lowland calcareous grassland in Cardiff. Identify and map lowland calcareous grassland in Cardiff by 2009.
Action 2	Designate all qualifying sites as SSSI.

Action Goal	Identify and designate all qualifying sites by 2009.
Action 3 Action Goal	Designate all qualifying sites as SINC. Identify and designate all qualifying sites by 2009.
Target 2 Target Goal	Achieve condition of lowland calcareous grassland in Cardiff. Achieve condition of 1ha of lowland calcareous grassland in Cardiff by 2015.
Action 1 Action Goal	Identify condition of lowland calcareous grassland in Cardiff. Identify condition and map lowland calcareous grassland in Cardiff by 2010.
Action 2 Action Goal	Secure favourable management of all sites. All sites in favourable management by 2012.
Target 3 Target Goal	Restore lowland calcareous grassland. Restore lowland calcareous grassland by 2015.
Action 1 Action Goal	Identify appropriate areas for restoration. Identify and map appropriate areas for restoration by 2008.
Action 2 Action Goal	Secure favourable management of sites to achieve restoration. Secure favourable management by 2010.

6. LINKS WITH OTHER ACTION PLANS

Waxcaps

7. SPECIES STATEMENTS

Chalk Carpet
Glow Worm

GARDENS AND ALLOTMENTS HABITAT ACTION PLAN FOR CARDIFF

1. INTRODUCTION

Cardiff's gardens are a vast and undervalued biodiversity resource; their hedges, trees, shrub and flowering/fruiting plants offer a huge food and habitat resource for a range of animals. Gardens that offer the most diversity are generally characterised by mature shrubs and trees in addition to 'field layer' plants. Garden ponds can be a refuge for many species while providing clean drinking and washing water for mammals and birds.

The plan also covers allotments. In built up areas where there are few domestic gardens allotments can be a refuge for wildlife. Encouraging certain species can assist with natural pest control, for example, Slow worms, Frogs and Toads all eat slugs and Ladybirds eat aphids.

In cities gardens provide essential networks linking up otherwise isolated green spaces. Gardens and allotments can enhance connectivity between large parks. Current trends for decking and patios are causing a decline in traditional gardens. Halting this decline and encouraging good practice in gardens will help keep these corridors open and greatly enhance the biodiversity of Cardiff.

The term garden in this plan relates to all private domestic, public and community gardens and allotment patches.

2. CURRENT STATUS

2.1 National Status

At least 16 million domestic gardens, covering over a thousand square miles. 84% of UK households have gardens.

2.2 Wales Status

Unknown.

2.3 Cardiff Status

There is no accurate figure of the number of gardens in Cardiff, but a conservative estimate

would be at least 80,000. The Council run 25 allotment sites amounting to around 75 hectares.

3. MAJOR FACTORS AFFECTING THE HABITAT IN CARDIFF

- Habitat loss/degradation – infrastructure development
  - Housing infrastructure.
- Habitat loss/degradation - management practice
- Invasive/non-native species

4. CURRENT ACTION

See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 UK

Although not identified as a UK BAP priority habitat, 'Built Up Areas and Gardens' is listed as a Broad Habitat Statement in the UK BAP.

5.2 Cardiff

Target 1 Target Goal	Maintain current extent of allotments in Cardiff. Ensure no net loss of 75ha of allotments in Cardiff by 2015.
Action 1	Monitor the disposal of allotment sites.
Target 2 Target Goal	Improve the condition of gardens for wildlife. Increase the number of gardens being worked in a wildlife friendly way.
Action 1 Action Goal	Increase the number of people taking part in Cardiff in Bloom - Wildlife Garden Class. Increase participant numbers by 50% each year.
Action 2 Action Goal	Increase the number of people participating in the RSPB Big Garden Birdwatch. Increase participant numbers by 10% each year.
Target 3 Target Goal	Increase number of organic allotments. Achieve 75% organic plots by 2015.
Action 1 Action Goal	Environmental Advice Team to visit allotments and educate plot holders on benefits of organic plots to wildlife and about beneficial species. Environmental Advice Team to visit all allotment sites (25) by 2012.
Target 4 Target Goal	Increase number of allotment sites with dedicated wildlife areas. 50% of allotment sites (12 sites) to have a dedicated wildlife area by 2015.
Action 1 Action Goal	Share resources/expertise with allotments committees to help identify potential areas and management schemes. 12 sites to have dedicated wildlife area by 2015.
Action 2 Action Goal	Encourage allotment sites to enter Cardiff in Bloom Wildlife Garden category. 12 sites to enter competition by 2015.

6. OTHER SPECIES AND HABITATS COVERED

Waxcap Fungi
Stag Beetle

Song Thrush
Bullfinch
Reptiles
Great Crested Newt
Parks
School Grounds
Ponds

MARITIME CLIFF AND SLOPE HABITAT ACTION PLAN FOR CARDIFF

1. INTRODUCTION

Maritime cliff and slope comprise sloping to vertical faces on the coastline where a break in slope is formed by slippage and/or coastal erosion. There appears to be no generally accepted definition of the minimum height or angle of slope which constitutes a cliff, but the zone defined as cliff-top (also covered in this plan) should extend landward to at least the limit of maritime influence (i.e. limit of salt spray deposition), which in some exposed situations may continue for up to 500 m inland.

The vegetation of maritime cliff and slopes varies according to several factors: the extent of exposure to wind and salt spray, the chemistry of the underlying rock, the water content and stability of the substrate and, on soft cliffs, the time elapsed since the last movement event. Cliff-top habitats can also be transformed by soil erosion processes.

This plan deals with natural sites, a separate Action Plan has been written for post industrial grasslands.

2. CURRENT STATUS

2.1 UK Status

In the 2005 reporting round no definite figure for this habitat was given.

2.2 Cardiff Status

The 1992 Phase 1 survey of Cardiff found 2.64ha of coastal grassland plus 1.11ha of hard cliff mostly on Flat Holm.

Flat Holm Island in the Bristol Channel is 32ha in area, 700m in diameter and is all exposed to salt spray. Species rich Red fescue maritime grassland occurs close to the cliffs. Species on Flat Holm that are characteristic or common in maritime cliff and slope communities include: Red fescue *Festuca rubra*, Thrift *Armeria maritime*, Buck's-horn plantain *Plantago coronopus* and Common oraches *Atriplex spp*. Additional species of interest are the Wild leek *Allium ampeloprasum*, which is a feature of the SSSI, Bird's foot clover *Trifolium ornithodpodiodes*, Slender thistle *Carduus tenuiflorus* and Henbane *Hyoscamus niger*. The species rich grassland is mainly

found around the edge of the island as the central area has been heavily disturbed.

3. MAJOR FACTORS AFFECTING THE HABITAT IN CARDIFF

- Habitat loss/degradation - succession
  - Natural succession
- Habitat loss/degradation
  - Rabbit/sheep grazing
- Habitat loss/degradation
  - Nutrient enrichment by gull colony

4. CURRENT ACTION

See www.ukbap.org.uk for lead partner actions
See www.ukbap-reporting.org.uk for local actions progress

5. TARGETS

5.1 Wales Targets

All targets to be achieved by 2015

Target type	Amount
Maintain	619km
Achieve condition	372km
Restore	
Expand	50ha

5.2 Cardiff's Targets and Actions

Target 1 Target Goal	Maintain current extent of maritime cliff and slope in Cardiff. Maintain the 3.75ha of hard cliff and coastal grassland.
Action 1 Action Goal	Maintain management regimes on Flat Holm. No loss of habitat on Flat Holm Island.
Target 2 Target Goal	Achieve condition of maritime cliff and slope in Cardiff. Achieve condition of 95% by 2015.
Action 1 Action Goal	Monitor vegetation on Flat Holm. Monitor vegetation on Flat Holm annually through the Flat Holm project.
Action 2	Maintain current grazing regime.

6. LINKS WITH OTHER ACTION PLANS

Childing Pink
Grayling Butterfly

NEUTRAL GRASSLAND
HABITAT ACTION PLAN FOR CARDIFF

1. INTRODUCTION

The UK BAP broad habitat definition of neutral grassland incorporates all semi-improved and unimproved grassland occurring on circumneutral soils. It includes enclosed and managed grassland such as hay meadows and pastures, a range of grasslands which are inundated with water periodically, permanently moist or even waterlogged grassland where the vegetation is dominated by grasses, and tall and unmanaged grassland.

Lowland semi-natural grasslands are mostly a product of human activity and have developed for hundreds of years through forest clearance, drainage and grazing. These activities are now used as conservation methods because grazing and mowing stop the build up of nutrients in the ground which would encourage robust grasses to flourish. Preventing the robust species from growing halts the process of succession to woodland and a rich diversity of broad-leaved herbaceous species are found in this habitat.

Although most of this habitat is found in agricultural areas other sites can be just as important including parkland, cemeteries, golf courses and road verges.

This plan will include natural semi-improved and unimproved lowland neutral grassland (inc marshy grassland). The Targets will be split to include the UK targets for unimproved grassland.

This plan deals with natural sites, a separate Action Plan has been written for post industrial grasslands.

2. CURRENT STATUS

2.1 UK Status

In the 2005 reporting round there were 10,521 hectares of unimproved lowland meadlow (UK

BAP priority habitat) in the UK with 1322 in Wales. The habitat trend was reported as declining (slowing).

2.2 Cardiff Status

Priority Habitats Wales identifies 4ha of unimproved lowland meadow grassland in Cardiff.

The 1992 Phase 1 survey of Cardiff found 291 ha of semi-improved neutral grassland (NVC MG1, 3-6, 11).

3. MAJOR FACTORS AFFECTING THE HABITAT IN CARDIFF

- Habitat loss/degradation – agriculture:
  - Intensive grassland management.
  - Undergrazing.
- Habitat loss/degradation – infrastructure development
  - Housing infrastructure.
  - Transport infrastructure.
- Habitat loss/degradation - succession
  - Natural succession
- Pollution - atmospheric
  - Nitrogen deposition

4. CURRENT ACTION

See www.ukbap.org.uk for lead partner actions.
See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 Wales Targets

All targets to be achieved by 2015

Target type	Hectares
Maintain	1322
Achieve condition	777
Restore	1554
Expand	50

There are no targets for the UK BAP broad habitat of Neutral Grasslands.

5.2 Cardiff's Targets and Actions

Lowland Meadows

Target 1 Target Goal	Maintain lowland meadow in Cardiff. Maintain 4ha of lowland meadow by 2015.
Action 1 Action Goal	Identify extent of lowland meadows in Cardiff. Identify and map lowland meadow in Cardiff by 2009.
Action 2 Action Goal	Designate all qualifying sites as SSSI. Identify and designate all qualifying sites by 2009.
Action 3 Action Goal	Designate all qualifying sites as SINC. Identify and designate all qualifying sites by 2009.
Target 2 Target Goal	Achieve condition of lowland meadow in Cardiff. Achieve favourable condition of 95% of lowland meadow by 2015.
Action 1 Action Goal	Identify condition of lowland meadows in Cardiff. Identify condition and map lowland meadow in Cardiff by 2009.

Action 2 Action Goal	Secure favourable management of all sites. All sites in favourable management by 2012.
Action 3	Continue current management where grassland is in favourable condition.
Target 3 Target Goal	Restore lowland meadow in Cardiff. Restore 3ha of semi-improved grassland to lowland meadow by 2015.
Action 1 Action Goal	Identify appropriate areas for restoration. Identify and map appropriate areas for restoration by 2009.
Action 2 Action Goal	Secure favourable management of all sites. All sites in favourable management by 2010.
Target 4 Target Goal	Expand lowland meadow in Cardiff. Expand the total area of lowland meadow by 0.1ha by 2015.
Action 1 Action Goal	Identify appropriate areas for the creation of new lowland meadows. Identify and map appropriate areas for creation by 2009.
Action 2 Action Goal(a Action Goal(b)	Create 0.1ha of lowland meadow by 2015. Agree new management plans for creation of meadows by 2008. Implement management plans (T4A2a) on 0.1ha by 2015.

Neutral Grassland broad habitat.

Target 5	Maintain current extent of neutral grassland in Cardiff. (Target to be determined after grassland surveys c2009).
Action 1 Action Goal	Identify locations of semi-improved neutral grassland in Cardiff. Identify and map semi-improved grassland by 2009.
Action 2 Action Goal	Secure favourable management of all sites. All sites in favourable management by 2010.
Target 6	Restore 10ha of semi-improved grassland on appropriate sites.
Action 1 Action Goal	Identify locations for restoration. Identify and map areas for restoration by 2009.
Action 2 Action Goal	Secure favourable management of all sites. All sites in favourable management by 2010.

6. LINKS WITH OTHER ACTION PLANS

Skylark
Marsh Fritillary
Ancient and/or Species-rich Hedgerows
Fen

PONDS
HABITAT ACTION PLAN FOR CARDIFF

1. INTRODUCTION

A pond is defined as 'a body of standing water 0.0025ha (25m2) to 2.0ha in area, that usually holds water for at least four months a year'. Ponds are an often undervalued asset in terms of their contribution to biodiversity, landscape, and cultural heritage. Many ponds have historical importance due to their previous functions as marl pits, farm ponds, mill ponds etc. Ponds also have a high educational and amenity value being used for fishing, boating and science education.

2. CURRENT STATUS

2.1 UK Status

In Britain, the Lowland Pond Survey of 1996 (LPS96) carried out by Pond Action/Institute of Terrestrial Ecology, gave a good indication of the quality and extent of the pond resource on a national scale. Wales was recorded as having some 15 700 + 3 500 lowland ponds at a density of 1.4 ponds/km2.

2.3 Cardiff Status

The Cardiff Pond Survey was undertaken in 1997-8. This study provides a set of baseline data on the ponds habitat resource within Cardiff and estimated between 146-156 ponds in the county (not including garden ponds).

In terms of conservation value, Cardiff was found to have significantly more ponds with a high conservation value than the national average. Thirty seven percent of the ponds surveyed were found to be of a high conservation value.

The current digital mapping information held by Cardiff Council identifies 186 ponds. This figure will be used for setting Targets in this plan.

3. MAJOR FACTORS AFFECTING THE HABITAT IN CARDIFF

- Habitat loss/degradation – infrastructure development
  - Housing infrastructure
  - Transport infrastructure
- Habitat loss/degradation - succession
  - Natural succession
- Invasive/non-native species
- Pollution – atmospheric
- Pollution – freshwater

4. CURRENT ACTION

There is currently no UK BAP plan for this habitat.
See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 UK Action Plan Targets

In 2007 Ponds were proposed as a priority habitat. If this proposal is accepted an action plan will be written to cover high quality ponds. This action plan and targets will be available at www.ukbap.org.uk.

5.2 Cardiff's Targets and Actions

Target 1 Target Goal	Maintain current extent of ponds. Maintain a minimum of 186 ponds in Cardiff.
Action 1 Action Goal	Using latest aerial photographs and ground truthing identify existing ponds. Updated distribution map of ponds by 2008.
Action 2 Action Goal	Designate all qualifying sites as SINC. Identify and designate all qualifying sites by 2009.
Target 2 Target Goal	Achieve favourable condition. Achieve favourable condition of 95% (177) of ponds by 2015.
Action 1 Action Goal	Identify the condition of known ponds. Identify and map the condition of ponds by 2010.
Action 2 Action Goal	Halt succession. Halt succession in [target to be determined from T2A1] by 2015.
Target 3 Target Goal	Restore ponds where appropriate. [to be determined from T3A1].
Action 1 Action Goal	Identify the condition of known ponds. Identify and map the condition of ponds by 2010.
Action 2 Action Goal	Restore 2 ponds lost/degrading due to water loss/succession each year. Restore 2 ponds annually.
Target 4 Target Goal	Increase number of ponds in Cardiff. Increase number of ponds to 200 by 2015.
Action 1 Action Goal	Identify potential sites for new ponds. Identify and map sites for new ponds by 2008.
Action 2 Action Goal	Create new ponds. Create 14 new ponds by 2015.

Action 3 Action Goal	Maintain newly created ponds. Check ponds 5 years after creation and draw up appropriate management plans.

6. LINKS WITH OTHER ACTION PLANS

Great Crested Newt
Water Vole
Reedbeds
Gardens

REEDBED
HABITAT ACTION PLAN FOR CARDIFF

1. INTRODUCTION

Reedbeds are wetlands dominated by stands of the Common Reed *Phragmites australis*. They typically occur in shallow lowland fresh water, such as ditches and the edges of ponds and lakes. They can grow out of water in situations where the water table is close to the surface for most of the year. Reedbeds also occur in tidal locations in some estuaries. Trees, especially willows and alder frequently colonise reedbeds. This process of 'succession' can lead to the reedbed being replaced by 'carr' woodland.

Reedbeds are an important habitat for birds in the UK. They support a distinctive breeding bird assemblage, including some species which are nationally rare and/or priority species in the UK Biodiversity Action Plan (UK BAP). The are also important areas for fish and many specialist invertebrates.

The Cardiff reedbeds are very small but still support breeding populations of Reed Bunting, a priority species in the UK BAP.

2. CURRENT STATUS

2.1 UK Status

In the 2005 reporting round there were 6630ha of reedbed in the UK with 460ha in Wales. The habitat status was reported as increasing.

2.2 Cardiff Status

Priority Habitats Wales identified 0.5ha of reedbed in Cardiff.

3. MAJOR FACTORS AFFECTING THE HABITAT IN CARDIFF

- Habitat loss/degradation – succession
  - Natural succession

4. CURRENT ACTION

See www.ukbap.org.uk for lead partner actions.
See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 Wales Targets

All targets to be achieved by 2015

Target type	Hectares
Maintain	460
Achieve condition	276
Expand	25

5.2 Cardiff's Targets

Target 1 Target Goal	Maintain current extent of reedbed in Cardiff. Maintain 0.5ha of reedbed in Cardiff.
Action 1 Action Goal	Identify extent of reedbed in Cardiff. Identify and map reedbed in Cardiff by 2007.
Target 2 Target Goal	Achieve favourable condition of reedbed in Cardiff. Achieve condition of 0.5ha of reedbed in Cardiff by 2015.
Action 1 Action Goal	Monitor the condition of reedbed in Cardiff. Monitor the condition of reedbed in Cardiff every 5 years.
Action 2 Action Goal	Improve the condition of reedbeds identified as under condition. Undertake management as identified in A1.
Target 3 Target Goal	Increase area of reedbed in Cardiff. Increase area of reedbed in Cardiff by 0.25ha by 2015.
Action 1 Action Goal	Identify and list areas for potential expansion of reedbed. Identify and list areas by 2007.
Action 2 Action Goal	Facilitate the expansion of reedbeds as identified in T3A1. Facilitate the expansion of 0.25ha of reedbeds by 2010.

6. LINKS WITH OTHER ACTION PLANS

Water Vole
Otter

PURPLE MOOR GRASS AND RUSH PASTURE (RHOS PASTURE) HABITAT ACTION PLAN FOR CARDIFF

1. INTRODUCTION

Purple Moor Grass and Rush Pasture (known in Wales as Rhos Pasture) is a marshy grassland habitat characterised by an abundance of Purple Moor Grass *Molinia caerulea* and various rush species, including Sharp Flowered Rush *Juncus acutiflorus* and Soft Rush *Juncus effusus*. The habitat is widely distributed in the Atlantic fringes of Europe and occurs in areas of high rainfall and on acid to neutral soils of impeded drainage.

The habitat encompasses several NVC (National Vegetation Classification) communities (M22, 23, 24, 25, 26). These communities can occur in mosaics with other vegetation types e.g. wet heath, acid grassland etc., the structures of which vary in response to gradients in climate, and soil wetness and chemistry. Many support a rich diversity of wetland plants, invertebrates and birds. Their management, especially grazing regimes, is a critical factor. Some of the communities associated with this habitat are scarce in Britain, notably those associated with moderately base-rich conditions in the lowlands.

2. CURRENT STATUS

2.1 UK Status

In the 2005 reporting round there were 79,392ha of purple moor grass and rush pasture in the UK with 32,161 of that in Wales. The habitat trend was reported as declining (slowing).

2.1 Cardiff Status

Priority Habitats Wales identifies 12ha of Purple Moor-grass and Rush Pasture in Cardiff with a further 34ha of lowland marshy grassland.

3. MAJOR FACTORS AFFECTING THE HABITAT IN CARDIFF

- Habitat loss/degradation – agriculture
  - Intensive grassland management
- Habitat loss/degradation – drainage/abstraction

- Drainage (for agriculture)
- Habitat loss/degradation – infrastructure development
  - Housing infrastructure
- Habitat loss/degradation - succession
  - Natural succession
- Pollution - atmospheric
  - Nitrogen deposition

4. CURRENT ACTION

See www.ukbap.org.uk for lead partner actions.
See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 Wales Targets

All targets to be achieved by 2015

Target type	Hectares
Maintain	32161
Achieve condition	15650
Restore	445
Expand	40

5.2 Cardiff's Targets

Target 1 Target Goal	Maintain extent of existing Purple Moor-grass and Rush Pasture. Maintain 12ha of Purple Moor-grass and Rush Pasture.
Action 1 Action Goal	Identify extent of Purple Moor-grass and Rush Pasture in Cardiff. Identify and map Purple Moor-grass and Rush Pasture in Cardiff by 2010.
Action 2 Action Goal	Designate all qualifying sites as SSSI. Identify and designate all qualifying sites by 2009.
Action 3 Action Goal	Designate all qualifying sites as SINC. Identify and designate all qualifying sites by 2009.
Target 2	Target Group Achieve favourable condition of 95% of Rhos Pasture in Cardiff by 2015.
Action 1 Action Goal	Identify condition of Rhos Pasture in Cardiff. Identify condition and map Rhos Pasture in Cardiff by 2009.
Action 2 Action Goal	Secure favourable management 95% of Rhos Pasture. All sites in favourable management by 2012.
Action 3	Continue current management where grassland is in favourable condition.
Target 3 Target Goal	Restore 2ha of Purple Moor-grass and Rush Pasture in Cardiff. Expand range of Purple Moor-grass and Rush Pasture by 2ha by 2015.
Action 1 Action Goal	Identify appropriate areas for expansion. Identify and map appropriate areas for expansion by 2010.
Action 2 Action Goal	Restore/create 0.1ha of Purple Moor-grass and Rush Pasture. Restore/create 0.1ha of Purple Moor-grass and Rush Pasture by 2015.

6. LINKS WITH OTHER ACTION PLANS

Skylark
Marsh Fritillary
Meadows
Ancient and/or Species-rich Hedgerows
Unimproved Grassland
Fen

WOODLAND
HABITAT ACTION PLAN FOR CARDIFF

1. INTRODUCTION

There are several different types of woodland listed as priority habitat in the UK Biodiversity Action Plan. Broad Habitat types are split into Broadleaved, Mixed and Yew Woodland and also Coniferous Woodland. After the 2005 UKBAP review the new targets for woodlands will be placed together under the overaching name of Native Woodland, while retaining the plans for priority habitat types. Targets in this plan will refer to native broadleaved woodland. Native is defined by the UKBAP as: Woodland where at least 80% of the canopy comprises species that are suited to the site and are within their natural range.

Priority Habitats which occur in Cardiff include Lowland Beech and Yew, Wet Woodland and Upland Oakwood. In addition, these woodland types are listed under 42 of the Natural Environment and Rural Communities Act (2006) List of Species and Habitats of Principal Importance for the Conservation of Biological Diversity published by the Welsh Assembly Government. However there are also woodlands that do not fit neatly into a single category. Therefore it has been decided to have a single habitat action plan to cover all types of woodland.

This is a complex habitat as there are many landowners (public and private), with many different organisations involved in managing the woodland in Cardiff, and the UK as a whole.

2. CURRENT STATUS

2.1 UK Status

Woodland type	Status in hectares / trend in UK	Status(Ha) / trend in Wales
Native woodland	1,058,721	124,341
Ancient semi-natural woodland	403,400	34,400

Lowland beech and yew	34160Ha / increasing	4160 / increasing
Upland oak Wet	115750 / increasing 52850 / increasing	41400 / increasing 9250 / increasing

2.2 Cardiff Status

The CCW Phase 1 survey recorded over 800ha of semi-natural, broadleaved woodland in Cardiff. This is approximately 5% of Cardiff. However, the woodland in Cardiff is very fragmented and areas are rarely larger than 5 hectares. An exception to this is the block from Castel Coch to the Wenallt which is approximately 200ha. Much of Cardiff's woodland is either semi-natural, ancient woodland or replanted ancient woodland. There are also several sites where ancient woodland once existed but has been cleared and not all of these sites have been built on. A significant proportion of the woodland occurs within built up areas.

218.2ha of woodland in Cardiff are in SSSIs of which 115.3ha are also SACs.

The Cardiff Beech Woods, Longwood, Coed-y-Creigiau and half of Coed-y-Bedw are the only sites that come under the lowland beech and yew category. These total 143.8 ha. There are approximately 90ha of upland oak woodland in Cardiff at 7 different sites. Wet woodland mostly occurs as small patches in other woodland and the total extent is not known. However there are at least 33 sites in Cardiff that contain areas of wet woodland.

Sites of national importance include Long Wood near Glamorganshire Canal, the Wenallt and the Cardiff Beech Woods, which are SSSIs. The Cardiff Beech Woods have been designated a Special Area of Conservation for the lowland beech woodland, which is amongst the most westerly naturally occurring in the UK.

3. MAJOR FACTORS AFFECTING THE HABITAT IN CARDIFF

- Habitat loss/degradation – infrastructure development
  - Housing infrastructure.
  - Transport infrastructure
- Human disturbance
  - Other recreation/tourism
- Pollution - land
  - Agricultural (nutrient enrichment)

4. CURRENT ACTION

See www.ukbap.org.uk for lead partner actions.
See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 Wales Targets

All targets to be achieved by 2015

Target type	Hectares
Maintain	124,300
Achieve condition	35,530
Restore	4,910
Expand	4,264

5.2 Cardiff's Targets

Target 1	Maintain the current extent and distribution of native woodland in Cardiff.
Target Goal	Maintain current extent of native woodland in Cardiff.

Action 1 Action Goal	Identify current extent of native woodland in Cardiff. Identify and map current native woodland in Cardiff by 2007.
Action 2 Action Goal	Designate all qualifying sites as SSSI. Identify and designate all qualifying sites by 2009.
Action 3 Action Goal	Designate all qualifying sites as SINC. Identify and designate all qualifying sites by 2009.
Action 4 Action Goal	Monitor the extent of native woodland in Cardiff. Use management plans and existing monitoring programmes to survey 10% of woodlands per year.
Target 2 Target Goal	Maintain the current extent and distribution of native ancient semi-natural woodland in Cardiff. Maintain 674.75 ha of native semi-natural ancient woodland in Cardiff.
Action 1 Action Goal	Identify current extent of native woodland in Cardiff. Identify and map current native woodland in Cardiff by 2007.
Action 2 Action Goal	Designate all qualifying sites as SSSI. Identify and designate all qualifying sites by 2009.
Action 3 Action Goal	Designate all qualifying sites as SINC. Identify and designate all qualifying sites by 2009.
Action 4 Action Goal	Monitor the extent of ancient semi-natural woodland in Cardiff. Use management plans and existing monitoring programmes to survey 10% of woodlands per year.
Target 3	Achieve favourable or recovering condition of 95% native woodland in Cardiff by 2015.
Action 1 Action Goal	Identify current condition of native woodland in Cardiff. Identify and map current condition of native woodland in Cardiff by 2010.
Action 2 Action Goal	Secure favourable management of all sites. All sites in favourable management by 2012.
Action 3	Continue current management where woodland is in favourable condition.
Action 4 Action Goal	Monitor the condition of woodland in Cardiff. Use management plans and existing monitoring programmes to survey 10% of woodlands per year.
Target 4	Restore non-native plantations on ancient woodland sites (PAWS).
Action 1 Action Goal	Identify current extent of PAWS in Cardiff. Identify and map current native woodland in Cardiff by 2007.
Target 5 Target Goal	Expand current native woodland resource. Expand current native woodland resource by 2015 (target to be agreed with GLAMBAG).
Action 1 Action Goal	Identify suitable sites for new woodlands. Identify and map suitable sites for new/expansions of woodland by 2007.
Action 2 Action Goal	Apply for woodland grants. Apply for woodland grants and implement schemes by 2015.

6. LINKS WITH OTHER ACTION PLANS

Pied Flycatcher
Bats
Silver-washed Fritillary
Stag Beetle
Dormouse

BATS
SPECIES ACTION PLAN FOR CARDIFF


Photo: John Altringham

1. INTRODUCTION

There are currently 17 species of bat in Britain. All British bats are protected by law. Populations of all species are thought to have declined in recent years and the are UK BAP Species Action Plans for Barbastelle, Bechstein's, Greater Mouse-eared, Pipistrelle, Greater Horseshoe, and Lesser Horseshoe Bats. More information about bats can be found at http://www.bats.org.uk/.

2. CURRENT STATUS

2.1 UK Status

Of the 17 species in Britain six are endangered or rare and six others are vulnerable. Amongst the rarer bat species in Britain are the Greater Horseshoe Bat *Rhinolophus ferrumequinum* and the Lesser Horseshoe Bat *Rhinolophus hipposideros*. South Wales is a stronghold for both of these species.

UK and Wales status of UKBAP species found in Cardiff.

Species	UK value 2005/trend	Wales value 2005/trend
Soprano Pipistrelle *Pipistrellus pygmaeus*	1,300,000 / stable	64,800 / unknown
Noctule *Nyctalus noctula*	Unknown	Unknown
Brown long-eared *Plecotus auritus*	Unknown	Unknown
Greater Horseshoe *Rhinolophus ferrumequinum*	4,920 / increasing	915 / increasing
Lesser Horseshoe *Rhinolophus hipposideros*	18,000 / increasing	9,000 / increasing

It is illegal to deliberately kill, injure or keep bats, or cause damage to their roosting sites. All British bat species are protected by the Conservation (Natural Habitats &c.) Regulation 1994 and the 1981 Wildlife and Countryside Act (as amended). The Bern Convention protects all species of bats except Pipistrelles.

2.2 Cardiff Status

Bat records in Cardiff are limited. Species recorded since 1990 include Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle, Brown Long-Eared, Natterer's, Daubenton's, Lesser horseshoe, Greater Horseshoe, Noctule and Serotine.

Species	Cardiff status
Soprano Pipistrelle	Widespread but appears to prefer river corridors
Noctule	Widespread
Brown long-eared	Unknown but a significant roost sites are in St Fagans museum.
Greater Horseshoe	2 records, one from the city centre in 1939, and Lesser Garth Cave in 2003. Colony just outside Cardiff in Caerphilly.
Lesser Horseshoe	Maternity roost in St Fagans museum and records from Lesser Garth Cave

3. FACTORS AFFECTING THE SPECIES IN CARDIFF

- Global warming
  - Climate change
- Habitat loss/degradation – infrastructure development
  - Housing infrastructure
  - Industrial infrastructure
  - Restoration works on old buildings/walls
  - Transport infrastructure
- Human disturbance
  - Interference/displacement

4. CURRENT ACTION

See www.ukbap.org.uk for lead partner actions.
See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 UK Action Plan Targets

Targets for bat species found in Cardiff covered by UK Action Plans are outlined below. Brown long-eared and Noctule bats were put on the UK BAP list in 2007 and do not have targets yet.

Soprano Pipistrelle

Target 2	Maintain *P. pygmaeus* population above 2005 baseline level.
Target 4	Increase *P. pygmaeus* population index by 35% of the 2005 baseline level by 2020.

Greater Horseshoe

Target 1	Maintain the current range (11 occupied 10km squares) of Greater Horseshoe bats in Wales.
Target 3	Ensure Greater Horseshoe bat population is at 25% of 2005 baseline level by

	2010.

Lesser Horseshoe

Target 1	Achieve an increase in the range of Lesser Horseshoe bats in Wales by from 83 to 136 occupied 10km squares 2030.
Target 2	Increase *R. hipposideros* population index by 25% of the 2005 baseline level by 2020.

5.2 Cardiff's Targets

Target 1 Target Goal	Maintain range of all species. Maintain range at 2006 levels.
Action 1 Action Goal	Take part in the NBMP annual surveys at repeat monitoring sites. Undertake the following surveys each year: Rhymney Waterway at Draethen, Taff Waterway at Llandaff, Ely Waterway at Fairwater, Howardian Field.
Action 2 Action Goal	Enhance/supplement roosting sites through bat box schemes. Set up 25 boxes in suitable areas per year (this action should not start until a licensed surveyor is available to check the success of boxes).
Target 2 Target Goal	Increase the population of Lesser Horseshoes by 25% of the 2007 baseline by 2020. Increase population by 25% by 2020.
Action 1 Action Goal	Take part in the NBMP Lesser Horseshoe roost surveys at St Fagans Museum of Welsh Life. Get a licensed bat worker to survey the roost site twice a year.
Action 2	Ensure all suitable feeding habitat within 3km is suitably linked (in conjunction with Ecological Networks action plan).
Action 3 Action Goal	Investigate the potential of artificial heated boxes to help expand this species into new areas. To be developed if proposal is practical.

6. LINKS WITH OTHER ACTION PLANS

Woodland
Calcareous Grassland
Neutral Grassland
Ponds
Gardens
Ecological Networks

CHILDING PINK (*PETRORHAGIA NANTEUILII*) SPECIES ACTION PLAN FOR CARDIFF

1. INTRODUCTION

Childing Pink is an annual plant with pink flowers. It has a Mediterranean distribution, and the UK is its most northerly occurrence. It is a native plant in the UK, occurring in dry grassy places, although with a very restricted distribution. In west Sussex it occurs only on sand and shingle by the coast.

2. CURRENT STATUS

There are three known populations occurring in southern England, at Sinah Common SSSI (Site of Special Scientific Interest) on Hayling Island, at Shoreham-by-Sea, West Sussex (an undesignated site) and at Pagham Harbour LNR (Local Nature Reserve). It has also been recorded on the Channel Islands. The only current known site in Wales is at Cardiff Docks, where it was first recorded by R. L. Smith in 1926 and rediscovered by J. P. Curtis in 1980. There is an additional previous record in Glamorgan on a grassy bank in Cwn Dare, Aberdare, where it was introduced when the area was reseeded, but is thought to be extinct.
At other UK sites it has been introduced. The origin of the Cardiff population is unknown.

Surveys of the Cardiff population revealed an initial low population in 1988 of 11 individual plants, which steadily rose to a maximum of 1105 in 1996. Following this, the most recent count (in 2002) recorded only four plants.

Childing Pink is fully protected under schedule 8 of the Wildlife and Countryside Act 1981 (as amended). It is the only plant in Cardiff to be afforded such protection. The Cardiff population of Childing Pink is found at Beach Sidings which is designated as a Site of Importance for Nature Conservation (SINC).

3. FACTORS AFFECTING THE SPECIES IN CARDIFF

- Habitat loss/degradation – management practice
  - Lack of disturbance
  - Loss of open areas
  - Neglect
  - Scrub encroachment
- Intrinsic factors
  - Low population density/size
- Habitat loss/degradation – succession

4. CURRENT ACTION

See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 UK Action Plan Targets

Childing Pink is not part of the UK Biodiversity Action Plan.

5.2 Cardiff's Targets and Actions

Target 1 Target Goal	Maintain current range of Childing Pink. Maintain population at 1 site.
Action 1 Action Goal	Monitor population at known site. Survey site every 3 years.
Action 2	Maintain suitable habitat.

6. LINKS WITH OTHER ACTION PLANS

Calcareous Grassland

DORMOUSE (*MUSCARDINUS AVELLANARIUS*) SPECIES ACTION PLAN FOR CARDIFF

1. INTRODUCTION

The Dormouse (*Muscardinus avellanarius*) is a secretive, nocturnal mammal confined primarily to the understorey of woodland with a rich diversity of shrub species. It is also found in species-rich hedgerows linked to woodland sites. It spends the majority of its time climbing among tree branches in search of food and rarely comes to the ground. There is recent evidence of Dormice using habitat previously thought unsuitable, such as coniferous woodland.

The species makes a distinctive woven nest, usually from shredded Honeysuckle bark. The nest is usually in low shrubs but they will also take over old birds nests. They prefer to nest in tree holes which is why they can be easily enticed to use artificial nest boxes. Dormice have a sleepy reputation and around October they will start to hibernate. They emerge again 5-6 months later but go into a torpid state if it is cold or food is scarce.

Dormice rarely go more than 70m from their nest. The small home range area they use (3000m2) is compensated for by using all habitat layers, depending on what food source is available at that time. Dormice are specialist feeders, concentrating on high-grade foods such as nectar, berries and insects. It is probably the hazel nuts which often provide the most body fat for hibernation. Even in rich habitats Dormice live at low densities relative to other rodents.

2. CURRENT STATUS

2.1 UK Status

In the 2005 reporting round there were 376 occupied 10km squares through the UK with 62 of these in Wales. The national trend has been reported as declining (slowly).

The Dormouse is listed on Appendix 3 of the Bonn Convention and Annex IVa of the EC Habitats Directive. It is protected under Schedule 2 of the Conservation (Natural Habitats,

etc.) Regulations, 1994 (Regulation 38) and Schedule 5 of the Wildlife & Countryside Act 1981 (as amended).

2.2 Cardiff Status

New populations were found in Cardiff in 2006, since 2000 Dormice have been recorded in 6 1km squares. The current trend for the area is not known.

3. FACTORS AFFECTING THE SPECIES IN CARDIFF

- Habitat loss/degradation - agriculture
  - Loss of hedgerows
- Habitat loss/degradation – infrastructure development
  - Housing infrastructure
  - Industrial infrastructure
  - Transport infrastructure
- Habitat loss/degradation - management practice
  - Demise of traditional practices
- Habitat loss/degradation - woodlands/forestry
  - Decline of woodland coppicing/pollarding

4. CURRENT ACTION

See www.ukbap.org.uk for lead partner actions.
See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 Wales Targets

Target 1	Maintain the current range of 62 occupied 10km squares.
Target 3	Ensure the dormouse population index is at 100% of the 1991 level by 2015 and increase to 115% of the 1991 level by 2020.

5.2 Cardiff's Targets and Actions

Target 1 Target Goal	Maintain current range. Maintain population at 6 1km squares.
Action 1 Action Goal	Provide nest tubes/boxes in suitable areas. 6 1km squares with nest tubes by 2010.
Action 2 Action Goal(a) Action Goal(b)	Maintain current management regime in woodlands with known populations. Agree management plans with landowners by 2010. Implement management plans.
Action 3 Action Goal	Ensure periodic survey of known sites. 2 1km squares with known dormouse populations to be surveyed each year using nest boxes (licence pending).
Action 4 Action Goal	Survey potential new sites / follow up any new records with full surveys. Survey 16 1km squares by 2012 using nest tubes (licence pending).
Target 2	Increase of population through expansion in range.
Action 1	Protect crucial linkage sites such as hedgerows both within Cardiff and to populations in neighbouring authorities (in conjunction with Ecological Connectivity action plan).
Action 2 Action Goal(a) Action Goal(b)	Bring neighbouring woodlands into favourable condition. Agree management plans with landowners by 2010. Implement management plans.

Target 3	Establish if there is a population in the Pentyrch/Creigiau area. Goal Survey 16 1km squares (see map).
Action 1	Survey sites with potential for dormouse use in the Pentyrch/Creigiau area.
Action Goal(a) Action Goal(b)	Put up nest tubes prior to surveying (16 1km squares by 2012). 16 1km squares to be surveyed by 2012.

6. LINKS WITH OTHER ACTION PLANS

Woodland
Ecological Networks

GREAT CRESTED NEWT (*TRITURUS CRISTATUS*) SPECIES ACTION PLAN FOR CARDIFF

1. INTRODUCTION

The Great Crested Newt *Triturus cristatus* is the largest of the three newt species native to the UK, reaching an average adult length of around 15cm. During the mating season in spring, the males of the species sport a magnificent crest which runs along their back. Both sexes have colourful yellow/orange markings to their underbelly and distinctive warty skin.

Like other amphibians, Great Crested Newts require both terrestrial and aquatic habitats to survive. Adult Great Crested Newts start to arrive in breeding ponds in March. Females lay up to 300 eggs over a period of several weeks, mostly between April and June. Eggs are laid singly, normally on the thin, easily folded leaves of water plants. Following breeding, adults progressively leave the pond and the majority spend the summer on land, but may return occasionally to water.

The eggs take around three weeks to hatch. After hatching, the larvae feed mainly in summer on a diet of small invertebrates, and grow rapidly. The larvae have fine external gills. Well-grown Great Crested Newt larvae will eat smaller newt larvae, including those of their own species. The larvae complete metamorphosis after around three months. As they metamorphose into juvenile, terrestrial (land living) newts, the gills and tail fin reduce in size and the breathing function shifts to the lungs, although respiration across the skin is also possible. Young Great Crested Newts generally leave the pond from around late August through to September. Hibernation of both adults and young occurs on land, normally from around October to March. They seek places that do not suffer from frost, such as woodpiles or under garden sheds. Newts take around two to three years to reach sexual maturity.

Normally occurring in lowland habitats, the Great Crested Newt favours slow or still waters that are usually floristically diverse, with at least 50cm depth in water and cover 100m2 in area. They can also be found in small, dirty ponds and scrapes, although these are unlikely to support viable long-term populations. As adults, it is thought that they use up to 500m of the surrounding terrestrial habitat for feeding. Hence, the quality of the habitat surrounding the breeding ponds is vital for the survival of newt populations.

2. CURRENT STATUS

2.1 UK Status

In the 2005 reporting round there were 23500 sites/populations throughout the UK with 1500 of these in Wales. The national trend has been reported as declining (slowly) but for Wales it was reported as declining (continuing/accelerating).

The Great Crested Newt is listed in Annexes II and IV of the EC Habitats Directive and is therefore fully protected under Schedule 2 of The Conservation (Natural Habitats, &c.) Regulations 1994 (Regulation 38). Great Crested Newts are also listed in Appendix II of the Bern Convention and receive full protection under Section 9 of the Wildlife and Countryside Act 1981 (as amended). Licenses must be obtained from CCW before any Great Crested Newt work is done. This species is a UK Priority Species in the National Biodiversity Action Plan. Due to their status within the Habitats Directive, Great Crested Newts and their aquatic habitat have some of the strongest statutory and environmental policy protection of all Welsh species. This legislation not only protects the Great Crested Newt habitat, but also makes it an offence to capture or disturb the species.

2.2 Cardiff Status

At least 8 distinct populations of Great Crested Newt are found in Cardiff. The stronghold is the St Fagans area and an established population exists in Heath Park. The current trend for the area is unknown.

3. FACTORS AFFECTING THE SPECIES IN CARDIFF

- Changes in native species dynamics
  - Predation
- Habitat loss/degradation – infrastructure development
  - Infilling (e.g. of lakes/ponds/quarries)
- Habitat loss/degradation – management practice
  - Demise of traditional practices
- Habitat loss/degradation – succession
  - Natural succession

4. CURRENT ACTION

See www.ukbap.org.uk for lead partner actions
See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 Wales Targets

Target 1	Achieve an increase in the range of occupied 10km squares from 57 to 59 by 2010.
Target 2	Achieve an increase in the number of occupied ponds from 6,000 to 7,200 by 2010.
Target 3	Achieve an increase in the number of ponds with a Habitat Suitability Index of>0.7 from 3,600 to 4,320 by 2010.

5.2 Cardiff's Objectives and Targets

Target 1 Target Goal	Maintain current range. Maintain population in 8 known ponds (sites).
Action 1 Action Goal	Periodically survey all known sites. Survey 3 sites per year on a rolling programme.
Action 2	Maintain current management of ponds with known populations and surrounding terrestrial habitat.

Action Goal(a) Action Goal(b)	Agree management plans with landowners by 2010. Implement management plans.
Action 3 Action Goal	Provide appropriate terrestrial habitat where needed through management plans (T1A2). All known breeding ponds to have suitable terrestrial habitat within 200m by 2012.
Target 2 Target Goal	Expansion in range. Increase from 8 to 16 breeding ponds by 2015.
Action 1 Action Goal	Create new breeding ponds near known populations. Create 4 new breeding ponds by 2012.
Action 2 Action Goal	Survey existing ponds near existing populations. Survey all ponds within 1km of existing populations by 2012.
Action 3 Action Goal	Link up suitable ponds with appropriate terrestrial habitat. Ensure all ponds within 500m of breeding ponds have terrestrial links by 2012.
Action 4	Respond to any new sightings with a full survey.

6. LINKS WITH OTHER ACTION PLANS

Ponds
Hedgerows
Neutral Grassland

HAWFINCH (*COCCOTHRAUSTES COCCOTHRAUSTES*) SPECIES ACTION PLAN FOR CARDIFF

Photo: Chris Thomas www.ceeege.com

1. INTRODUCTION

At 18cm in length the Hawfinch is the largest British finch. Their large bill is used to crack open nuts and cherry kernels, and can exert a force of over 50kg. The call is similar to a Robin's ticking and the song is quiet. They spend most of their time in the canopy of tall trees and are often very elusive. Therefore, although distinctive, this bird can be very difficult to find.

Hawfinch breed in mature deciduous woodland, but can also be seen in suitable large gardens, parks, cemeteries and arboreta. They feed mainly on seeds of Hornbeam, Beech, Wych Elm, Bird Cherry and fruits including hips and haws from hedgerows.

2. CURRENT STATUS

Due to the highly arboreal and elusive nature of the species, it is difficult to estimate populations accurately. A 25-49% contraction of the UK breeding range over the last 25 years means the species has been placed on the Amber list of Birds of Conservation Concern.

In Cardiff, Hawfinch has been recorded in suitable habitat in deciduous woodland, particularly with concentrations of Hornbeam. Currently the main populations appear to be in the Forest Ganol area with breeding confirmed in 2003. Recent work by the Hawfinch Conservation Project suggests that the species is still present in areas such as Roath and Whitchurch but either visit infrequently or persist at a low density. The persistence of the population in the north of Cardiff, and the general difficulty in locating the species, indicate that regular breeding occurs but the species is highly under recorded.

The Cardiff population probably relies on interactions with groups from neighbouring areas, particularly Draethen in Caerphilly, for its continued survival.

The Hawfinch is protected in the UK under the Wildlife and Countryside Act (1981 as amended).

3. FACTORS AFFECTING THE SPECIES IN CARDIFF

- Changes in native species dynamics
  - Predation
- Intrinsic Factors

- Low population density/size
- Invasive/non-native species
  - Predation

Habitat fragmentation is an important factor in the decline of Hawfinch populations.

4. CURRENT ACTION

See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 Wales Targets

There is currently no UK action plan for this species.

5.2 Cardiff's Targets and Actions

Target 1 Target Goal	Maintain current range. Maintain population at 7 1km squares.
Action 1 Action Goal	Ensure periodic survey on known areas. 2 1km squares with 5+ previous Hawfinch records to be surveyed each year.
Action 2 Action Goal(a) Action Goal(b)	Maintain management regimes that favour known food/nesting species such as Hornbeam and Bird Cherry. Agree management plans with landowners by 2010. Implement management plans.
Action 3 Action Goal	Provide supplementary winter feeding if appropriate. Provide supplementary feeding for 3 months each year (late winter) when appropriate.
Target 2 Target Goal	Establish extent of population. Confirm presence in 11 'red' 1km squares.
Action 1 Action Goal	Survey 'red' 1km squares to validate recent records. Survey 11 'red' 1km squares by 2012.
Target 3 Target Goal	Encourage increase in population by expansion in range. Expand population into a further 6 1km squares.
Action 1 Action Goal	Ensure linkage between suitable habitat from main population. Increase linkage features suitable for Hawfinch through management/replanting programmes (in conjunction with Ecological Connectivity action plan).
Action 2 Action Goal	Establish extent of population in 2015. Survey appropriate 6 1km squares in 2015.

6. LINKS WITH OTHER ACTION PLANS

Woodland
Ancient and/or Species-rich Hedgerow

OTTER (*LUTRA LUTRA*)
SPECIES ACTION PLAN FOR CARDIFF


Photo: Richard Ford, www.digitalwildlife.co.uk

1. INTRODUCTION

Otters are semi-aquatic mammals and live mainly on the banks of rivers, canals, marshes, small streams, ditches, ponds and lakes. They also inhabit estuaries and coastal areas but always need access to freshwater. Otters are solitary animals except when breeding or with young and are mainly nocturnal on inland waters. They can live for up to 8-12 years in the wild but the average lifespan is 4 years. Females generally first breed at two years of age and usually have two cubs at a time. Their diet is chiefly fish, but also includes birds, small mammals, amphibians, crustaceans and molluscs occasionally.

Otters require clean rivers with little disturbance. They rest and breed in underground 'holts' or in dense riverbank vegetation or reedbeds. The 'holts' are often formed from tree roots on the riverbank. Their home range depends on food supply and can vary from 1-40km along rivers. They mark their territory with spraints (droppings) to maintain contact with their neighbours. Observation of spraints is the main method of determining otter distribution.

Otters are indicators of a healthy aquatic environment where the water is relatively unpolluted, with good fish stocks and waterside vegetation. By protecting otters we naturally safeguard the habitats they rely on, such as rivers, reedbeds and ponds and so we also protect other species which are dependent on these wetlands.

2. CURRENT STATUS

2.1 UK Status

In the 2005 reporting round there were 2219 occupied 10km squares through the UK with 205 of these in Wales. The national trend has been reported as increasing.

The otter is listed on Appendix 1 of CITES, Appendix II of the Bern Convention and Annexes II and IV of the Habitats Directive. It is protected under Schedule 5 of the WCA 1981 and Schedule 2 of the Conservation (Natural Habitats, etc.) Regulations, 1994 (Regulation 38). The European sub-species is also listed as globally threatened on the IUCN/WCMC RDL.

2.2 Cardiff status

Otter signs were found in 17 out of the 28 sample sites in a 2003 survey along the Rivers Taff,

Ely and Rhymney and other watercourses within the boundaries of Cardiff. These rivers are currently being re-surveyed. There have been 3 road Otters killed on roads in Cardiff since 2003.

3. FACTORS AFFECTING THE SPECIES IN CARDIFF

- Accident mortality
  - Road kills
- Changes in native species dynamics
  - Decline in food source/prey
- Habitat loss/degradation – infrastructure development
  - Housing infrastructure
  - Industrial infrastructure
  - Transport infrastructure
- Human disturbance
  - Watersports/fishing
- Pollution - freshwater
  - Industrial/commercial

4. CURRENT ACTION

See www.ukbap.org.uk for lead partner actions.
See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 Wales Targets

Target 1	Maintain the current distribution of the otter throughout Wales (205 occupied 10km squares).
Target 2	Expand the distribution of otters to achieve 85% occupancy of 10km squares by 2015 (231 occupied 10km squares).

5.2 Cardiff's Targets and Actions

Target 1 Target Goal	Maintain current range. Maintain population on all 3 rivers.
Action 1	Provide artificial holts in suitable areas.
Action 2	Provide natural, secure breeding and resting sites.
Action 3 Action Goal	Ensure periodic survey of known sites. Each river surveyed every 3 years.

6. LINKS WITH OTHER ACTION PLANS

Water vole
Ecological Connectivity

PIED FLYCATCHER (*FICEDULA HYPOLEUCA*) SPECIES ACTION PLAN FOR CARDIFF

Photo: Chris Thomas, www.ceeege.com

1. INTRODUCTION

The Pied flycatcher (*Ficedula hypoleuca*) is a summer visitor from Africa and adults arrive in northern Europe to breed from April to August. In the UK, breeding populations are mainly found in Wales, southern Scotland, western and northern England.

Its preferred habitat is mature, upland, broad-leaved woodland but it can also be found in well wooded parks and gardens. Areas of upland oak woodland with little undergrowth provide optimal habitats, particularly where there is grazing by sheep which increases the supply of insects. Cardiff is on the lower boundary of the altitudinal range for this species.

Pied flycatchers nest in holes, usually in mature trees. However, many broods are now raised in nest boxes which seem to be preferred to natural holes. The nest is built by the female from leaves, dead grass, moss and lichens, and lined with hair and wool.

Sometimes the male is bigamous and may hold territories up to 2 miles apart. However, if both clutches hatch, he will only help to feed the first.

2. CURRENT STATUS

2.1 UK Status

Results from the British Trust for Ornithology Breeding Birds Survey show a 30% decrease in Pied Flycatchers between 1994 and 2005.

The Pied Flycatcher is protected in the UK under the Wildlife and Countryside Act 1981 (as amended).

2.2 Cardiff Status

Cardiff is on the southern edge of the Pied flycatcher's range in Glamorgan. In 2006 they were reported breeding at just one site, Coed-y-Bedw, where 19 birds fledged from 4 nests. In 2007 only 1 female returned to the site and no young were fledged.

Monitoring at the species stronghold in the area suggests that the species is generally declining.

3. FACTORS AFFECTING THE SPECIES IN CARDIFF

- Changes in native species dynamics
  - Decline in food source/prey

There appears to be a reduction in the numbers of birds returning from their wintering ground in Africa. Adverse conditions in the wintering grounds may be an important factor in the recent decline.

4. CURRENT ACTION

See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 UK Action Plan Targets

The Pied flycatcher is not part of the UK Biodiversity Action Plan.

5.2 Cardiff's Targets and Actions

Target 1 Target Goal	Maintain the current population. Maintain the current population at 4 active nests in Coed-y-Bedw (2006 levels).
Action 1 Action Goal	Maintain current population in Coed-y-Bedw. Survey Coed-y-Bedw annually.
Action 2 Action Goal	Maintain current number of nest boxes in Coed-y-Bedw. 40 nest boxes in the woodland.
Action 3	Maintain current management of Coed-y-Bedw.
Target 2 Target Goal	Increase the population of Pied Flycatchers in Cardiff. Increase to 8 active nests in Cardiff by 2010.
Action 1 Action Goal	Survey potential new sites. Survey Tranch-yr-Hebog and Garth Hill biennially.
Action 2 Action Goal	Provide more nest boxes in suitable woodland. 10 new nest boxes in each of Coed-y-Bedw, Tranch-yr-Hebog and Garth Hill by 2010.
Action 3	Increase area of woodland in favourable management for Pied Flycatchers.
Target 3 Target Goal	Increase the range of Pied Flycatchers in Cardiff. Increase range from 1km sq to 4km sq.
Action 1 Action Goal	Survey potential new sites. Survey Tranch-yr-Hebog and Garth Hill biennially.
Action 2 Action Goal	Provide nest boxes in suitable woodland – particularly Tranch-yr-Hebog and Garth hill by 2010. 10 new nest boxes in each of Tranch-yr-Hebog and Garth Hill by 2010.
Action 3	Increase area of woodland in favourable management for Pied Flycatchers.

6. LINKS WITH OTHER ACTION PLANS

Woodland

REPTILES
SPECIES ACTION PLAN FOR CARDIFF

1. INTRODUCTION

There are currently six native species of reptiles in the UK. Cardiff has four of these; the Grass Snake, the Adder, the Common Lizard and the Slow-worm. All are subject to a range of threats and have seen declines in recent years. This plan covers all four native species found in Cardiff.

More information about reptiles and how to identify the different species can be found at www.froglife.org.

2. CURRENT STATUS

2.1 UK Status

Adder, Common Lizard and Slow-worm are widespread in mainland Britain, but Grass Snake is not thought to occur in Scotland.

All reptile species in the UK are on the UK BAP Priority Species list. They are all protected by the Wildlife and Countryside Act 1981, as amended. Section 9(1) of this Act makes it an offence intentionally to kill or injure reptiles and Section 9(5) makes it an offence to trade these animals or anything derived from them

2.2 Cardiff Status

There are very few records of reptiles in the Cardiff Biological Database, though this probably reflects lack of recording effort and the elusive nature of these creatures, as much as their rarity in the county. It is anticipated that the Slow-worm would be the most abundant of the four species, as it occurs in brownfield sites, parks and gardens, as well as rural areas. Grass snakes are likely to occur in the Gwent Levels as well as the rural north and west of Cardiff. Adders and Common Lizards are most likely to be confined to the Caerphilly Ridge to the north of Cardiff, although as with all reptile species, there is the possibility that they may find other suitable habitats in urban areas by using railway embankments as 'corridors' for dispersal.

3. FACTORS AFFECTING THE SPECIES IN CARDIFF

- Accidental mortality
  - Road kills
- Habitat loss/degradation – agriculture
  - Intensive grassland management
  - Loss of field margins
  - Loss of hedgerows
- Habitat loss/degradation – infrastructure development
  - Housing infrastructure
  - Industrial infrastructure
  - Infilling (e.g. of lakes/ponds/quarries)
  - Transport infrastructure
- Habitat loss/degradation – management practice
- Human disturbance
  - Other recreation/tourism
- Invasive/non-native species
  - Predation

4. CURRENT ACTION

See www.ukbap.org.uk for lead partner actions.
See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 UK Action Plan Targets

There are currently no UK plans for these species.

5.2 Cardiff's Targets and Actions

Target 1 Target Goal	Maintain current distribution of all species. Distribution at 2007 levels.
Action 1 Action Goal	Survey new sites. Survey 5 new sites per year.
Action 2 Action Goal	Maintain database. Update distribution maps annually.

To increase the population of reptiles in Cardiff appropriate habitat must be established/ maintained. This will be achieved with through the appropriate Habitat Action Plans.

6. LINKS WITH OTHER ACTION PLANS

Calcareous Grassland
Neutral Grassland
Ponds
Gardens
Ecological Networks

SILVER-WASHED FRITILLARY (*ARGYNNIS PAPHIA*) SPECIES ACTION PLAN FOR CARDIFF

Photo: Richard Ford, www.digitalwildlife.co.uk

1. INTRODUCTION

The Silver-washed Fritillary is one of the largest British butterflies. It is named after the silver streaks on the underside, which can be viewed as it stops to feed on flowers such as bramble. The upper wings are a deep orange with large black spots and lines. The male has four broad streaks of black scent cells along the central veins.

The Silver-washed Fritillary is single brooded, with adults flying from mid-July until early September. The females lay eggs singly in the crevices of tree bark, usually on the north or west side of the trunk. The larvae hatch after a few weeks but immediately enter hibernation. In the spring, they start to feed on Dog Violets. The few pupae that have been found in the wild have been 1–2m above the ground, suspended from leaves or twigs. Silver-washed Fritillary butterflies form discrete colonies within individual woods. As with many of the other fritillaries, the Silver-washed Fritillary depends on mature woodland with sunny openings. The maintenance of forest rides and an open canopy are important for populations. The Silver-washed Fritillary, however, is more shade tolerant than many of the other fritillaries.

2. CURRENT STATUS

2.1 UK Status

The Silver-washed Fritillary was once widespread in England and Wales. The butterfly is comparatively well recorded in Britain, it declined substantially during the twentieth century but saw an expansion in range in the 1990s. The reasons for the spread are unclear but possibly linked with the recent warmer weather. Investigations are clouded by several clandestine releases.

The Silver-washed Fritillary UK BAP status is as a Species of Conservation Concern. It is considered a medium priority in Wales by the Butterfly Conservation Society. The Silver-washed Fritillary is not threatened across Europe.

2.1 Cardiff Status

There is a population of Silver-washed Fritillaires in Forest Fawr in the North of

Cardiff. In 2006 adults were sighted in the North East in Cefn Mably Woods (most of which is in Caerphilly). This new sighting may be linked to the Forest Fawr population via woodlands in Caerphilly particularly Draethen. No comprehensive survey has been undertaken of the size of the population in Cardiff.

3. CAUSES OF DECLINE IN CARDIFF

- Habitat loss/degradation - woodland/forestry
  - Replanting woodland with inappropriate tree species (conifers)
- Habitat loss/degradation - management practice
  - Loss of open areas

4. CURRENT ACTION

See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 UK Action Plan Targets
Not applicable to this species.

5.2 Cardiff's Objectives and Targets

Target 1 Target Goal	Maintain current Forest Fawr population. Maintain current adult population of *(2007 survey results)* individuals.
Action 1 Action Goal	Maintain records of maximum number of adults. Survey Forest Fawr annually.
Action 2 Action Goal(a) Action Goal(b)	Increase overall area of violets in suitable locations throughout Forest Fawr. Survey rides in Forest Fawr for violet abundance. Agree and implement management scheme to increase areas of violets in Forest Fawr.
Target 2 Target Goal	Manage woodlands for Silver-washed Fritillary. Increase overall area of woodland suitable for Silver-washed Fritillary.
Action 1 Action Goal	Increase overall area of woodland suitable for Silver-washed Fritillaries. Discuss with FC.
Action 2 Action Goal	Monitor suitable woodland for new populations. Monitor suitable woodlands.

6. LINKS WITH OTHER ACTION PLANS

Woodland

STAG BEETLE (*LUCANUS CERVUS*) SPECIES ACTION PLAN FOR CARDIFF

Photo: Richard Ford, www.digitalwildlife.co.uk

1. INTRODUCTION

The Stag Beetle (*Lucanus cervus*) is Britain's largest and most striking terrestrial beetle. The males have large, stag-like 'antlers', which are in fact, greatly enlarged mandibles. Males can be up to 70mm in length while females are generally smaller, usually 40-50mm. Both sexes have a shiny black head and thorax, and the wing cases are black/brown. Identification of this species is most often confused with the Lesser Stag Beetle, which is smaller and has matt-black wing cases, and Cockchafers which are coffee coloured with very ridged wing cases, and much more hairy with a very pointed tail end.

Adult male Stag Beetles can be seen flying on warm summer evenings between May and August, while searching for a mate. The female lays her eggs near decaying wood which the developing larvae will feed on. The larvae need to eat large quantities of rotting wood, as it contains very little nutritional value. It can take up to four years for them to mature into adults. During their short adult life span (approximately 40 days), they will feed only, if at all, on sap runs and mature fruits. Although some have been observed over wintering, it is thought that at the end of the breeding season most die.

Stag Beetles can use many types of wood; they have been mostly reported on oak, apple, ash and cherry.

2. CURRENT STATUS

2.1 UK Status

In the 2005 reporting round Stag Beetles were recorded from 229 10km squares in England. There were no reports from Wales. In England the species trend was reported as being stable. The Peoples Trust for Endangered Species (PTES – UK Lead Partner) Great Stag Hunt surveys show a south easterly distribution in the UK.

2.2 Cardiff Status

In 2001 the species was recorded from a garden in Whitchurch where adults emerged in 2002. In 2006 a larvae was found in Forest Farm.

3. FACTORS AFFECTING THE SPECIES IN CARDIFF

- Habitat loss/degradation – woodlands/forestry
  - Lack of dead wood

4. CURRENT ACTION

4.1 UK

See www.ukbap.org.uk for lead partner actions.
See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 Wales Targets

Target 1	Maintain populations of stag beetle within its natural geographical range in the Wales (1 10 KM square).

5.2 Cardiff's Objectives and Targets

Target 1 Target Goal	Maintain current range. Maintain population within 1 10km square.
Action 1 Action Goal	Record sightings of stag beetles. Produce up to date distribution maps annually.
Action 2 Action Goal	Ensure suitable natural habitat is available. Include leaving dead wood piles in management plans and annual work programmes.
Action 3 Action Goal	Provide new breeding habitat through the Bury Buckets for Beetles programme (PTES). All Parks to have a buried beetle bucket by 2012.
Action 4 Action Goal	Ensure periodic surveys of buried buckets. Survey each bucket at least every 2 years.

6. LINKS WITH OTHER ACTION PLANS

Gardens
Woodland

WATER VOLE (*ARVICOLA TERRESTRIS*) SPECIES ACTION PLAN FOR CARDIFF


Photo: Richard Ford, www.digitalwildlife.co.uk

1. INTRODUCTION

Water Voles (*Arvicola terrestris*) are burrowing rodents, which are found throughout Europe. In the UK they are associated with water bodies of all kinds.

Although often known locally as water rats, this animal is a typical vole in shape with a short blunt muzzle, small hairy ears and a plump rounded body. However, it does have a relatively long and hairy tail. It is our largest vole, with adults weighing from 200 to 300 grams depending on the time of year. Most Water Voles are uniform dark brown in colour.

The Water Voles begin to breed in early spring, and build nests of grass or rushes either in burrows or sometimes above ground in reedbeds and dense vegetation. They have several litters a year containing around four young. By the end of winter, some 70% of the voles will have died or been eaten by predators. Those that do survive spend most of the time in the nest chambers of grass, deep in their burrows but only a very few live through more than two winters.

The main current threat to the Water Vole in the UK is the non-native American Mink. This species predates the voles and has decimated populations. Their presence is the barrier threat to re-introduction programmes.

2. CURRENT STATUS

2.1 UK Status

In the 2005 reporting round there were 730 occupied 10km squares through the UK with 69 of these in Wales. The national trend has been reported as declining (slowing).

Water Voles are protected under Schedule 5 of the Wildlife and Countryside Act 1981. This protects the Water Voles' places of shelter and the Water Voles themselves when they are in their place of shelter.

2.1 Cardiff Status

Only one record has been received since 2007, this being an individual in a stream in Tongwynlais in October 2007. They have previously been recorded on the Gwent Levels and probably bred hear. They are still found on the levels in Newport.

3. FACTORS AFFECTING THE SPECIES IN CARDIFF

- Habitat loss/degradation - drainage/abstraction
  - Drainage (for infrastructure/development)
- Habitat loss/degradation – infrastructure development
  - Industrial infrastructure
- Invasive/non-native species
  - Predation

4. CURRENT ACTION

See www.ukbap.org.uk for lead partner actions.
See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 Wales Targets

Target 1	Maintain the current range (69 occupied 10km squares) of water vole in Wales.
Target 2	Achieve an increase in range from 69 to 80 new occupied 10km squares in Wales by 2010.

5.2 Cardiff's Targets and Actions

Target 1	Establish extent of population in Cardiff.
Action 1	Follow up any sightings with further survey.
Target 2 Target Goal	Expand range into Cardiff from Gwent. Create a viable Water Vole population in Cardiff.
Action 1 Action Goal	Ensure adequate habitat links between Cardiff and Newport along the Gwent Levels. 1 site/population by 2012.
Action 2	Monitor Mink populations including trapping records.

6. LINKS WITH OTHER ACTION PLANS

Floodplain and Grazing Marsh
Otter
Ponds
Rivers Valleys
Ecological Networks

WAXCAP SPECIES (*HYGROCYBE SPP.*) SPECIES ACTION PLAN FOR CARDIFF

1. INTRODUCTION

Waxcap fungi (*Hygrocybe species*) are a distinctive and attractive genus, identifiable by their bright colours and often waxy appearances. They are generally found in ancient and relatively unimproved grasslands, within pastures, meadows, churchyards, parkland, rabbit-grazed sand dunes, commons, village greens and lawns. Suitable habitats for Waxcap fungi have declined severely in number since the Second World War. This has largely been due to agricultural improvement of traditional grassland. Waxcaps may serve as an indicator species of traditional unimproved habitats.

This plan will also consider *Microglossum olivaceum* the Olive Earth-tongue, which is also an indicator of unimproved grassland.

2. CURRENT STATUS

2.1 UK Status

Date-coloured Waxcap *Hygrocybe spadicea* and the Olive Earth-tongue are a UK BAP Priority Species. In 2005 Date-coloured Waxcap was reported from 18 10km squares in the UK with 8 in Wales. The Olive Earth-tongue was not reported on in 2005.

2.2 Cardiff Status

Date-coloured Waxcap was recorded in Bute Park arboretum in 2000 and 2004. The Olive Earth-tongue was recorded from Llanishen Reservoir grasslands in 2006.

There are 8 sites in Cardiff with over 10 species of waxcap recorded with one designated as a Site of Special Scientific Interest.

3. FACTORS AFFECTING THE SPECIES IN CARDIFF

- Habitat loss/degradation - agriculture
  - Inappropriate grazing (due to timing or livestock type)

- Intensive grassland management
- Habitat loss/degradation - infrastructure development
  - Housing infrastructure
- Habitat loss/degradation - succession
  - Natural succession
- Pollution - land
  - Agricultural (nutrient enrichment)

4. CURRENT ACTION

See www.ukbap.org.uk for lead partner actions.
See www.ukbap-reporting.org.uk for local action progress.

5. TARGETS

5.1 Wales Targets

Date-coloured Waxcap *Hygrocybe spadicea*

Target 1	Maintain the range of the Date-coloured waxcap at 10 10km squares.

Olive Earth-tongue *Microglossum olivaceum*

Target 1	Maintain the range of the Olive earth-tongue at 27 10km squares.

5.2 Cardiff's Targets

Target 1 Target Goal	Maintain the overall geographic range of the Date-coloured waxcap. Maintain range at 1 km square.
Action 1 Action Goal	Resurvey known site at optimal time annually for next 5 years to confirm persistence of fungi. Resurvey Bute Park arboretum annually until 2011.
Action 2 Action Goal(a) Action Goal(b)	Agree management regime with Parks for only known site. Confirm management agreement with parks by 2008. Implement management plan.
Target 2 Target Goal	Maintain the overall geographic range of the Olive Earth-tongue. Maintain range at 1km square.
Action 1 Action Goal	Resurvey known site at optimal time annually for next 5 years to confirm persistence of fungi. Resurvey Llanishen Reservoir grassland annually until 2011.
Target 3	Maintain valuable fungi grasslands.
Action 1 Action Goal	Survey new sites with potential for good levels of grassland fungi. Survey 2 new sites per year and produce updated distribution maps.
Action 2 Action Goal	Designate all qualifying sites as SINCs under the regional criteria. Designate all qualifying sites by 2012.

6. LINKS WITH OTHER ACTION PLANS

Meadows
Parks
Calcareous Grassland
Gardens

GENERIC ACTION PLANS
AWARENESS RAISING

1. Introduction

This generic action plan will deal with raising awareness of biodiversity and nature conservation issues. It should be used in conjunction with the HAPs and SAPs that make up the Cardiff LBAP but can also generate actions separately.

The plan is intended to improve peoples understanding of biodiversity, create opportunities for people to enjoy biodiversity, raise awareness of conservation issues and get more people involved in projects.

There are groups within Cardiff who already run awareness raising events and this plan should complement the work already taking place.

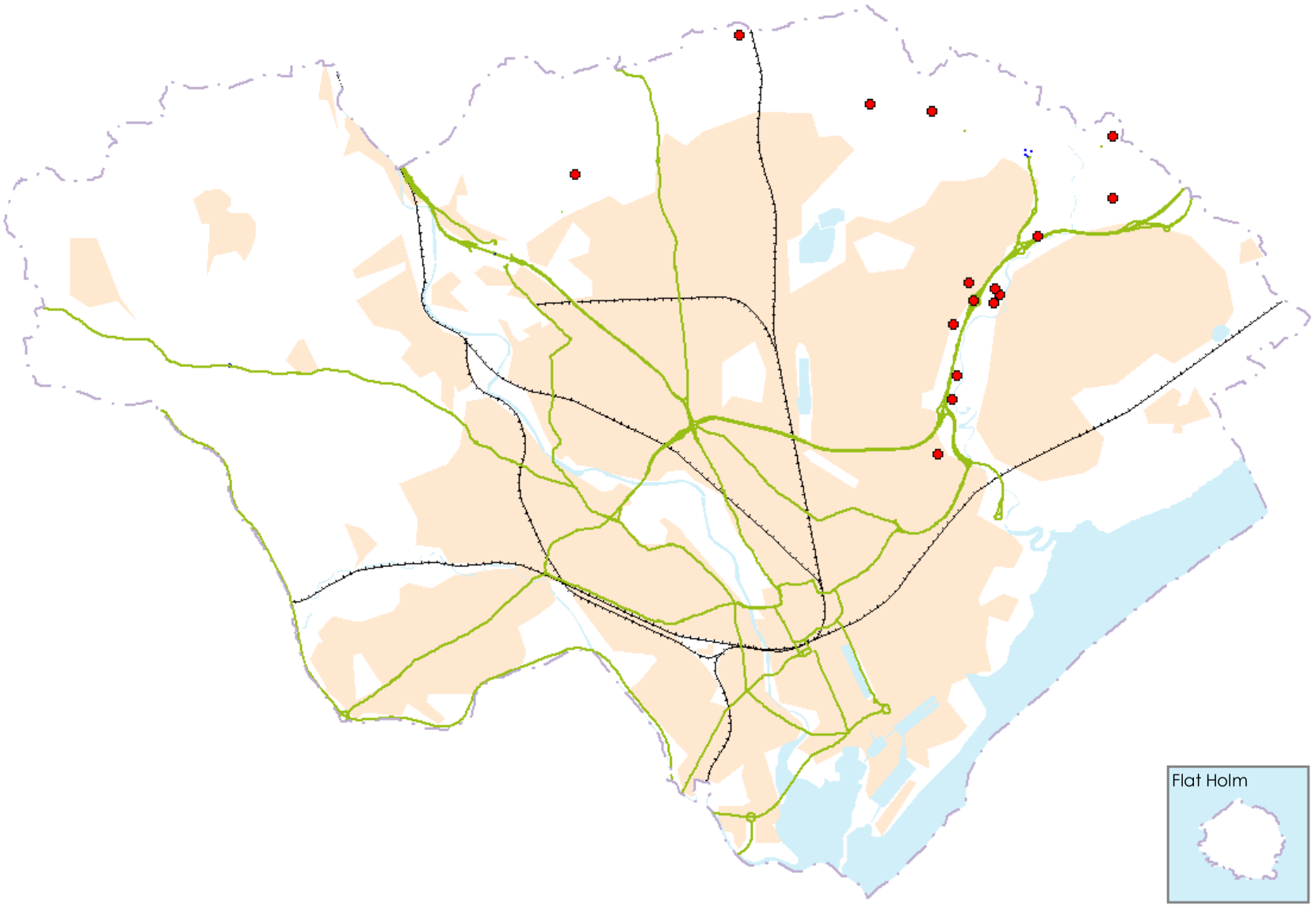
National events such as the RSPB Big Garden Birdwatch can be promoted on a local scale. The Wales Biodiversity Partnership coordinates events and promotions through Wales. Each year several events take place in Cardiff during Wales Biodiversity Week.

WBP - www.biodiversitywales.org.uk
Cardiff Biodiversity – www.cardiff.gov.uk/biodiversity

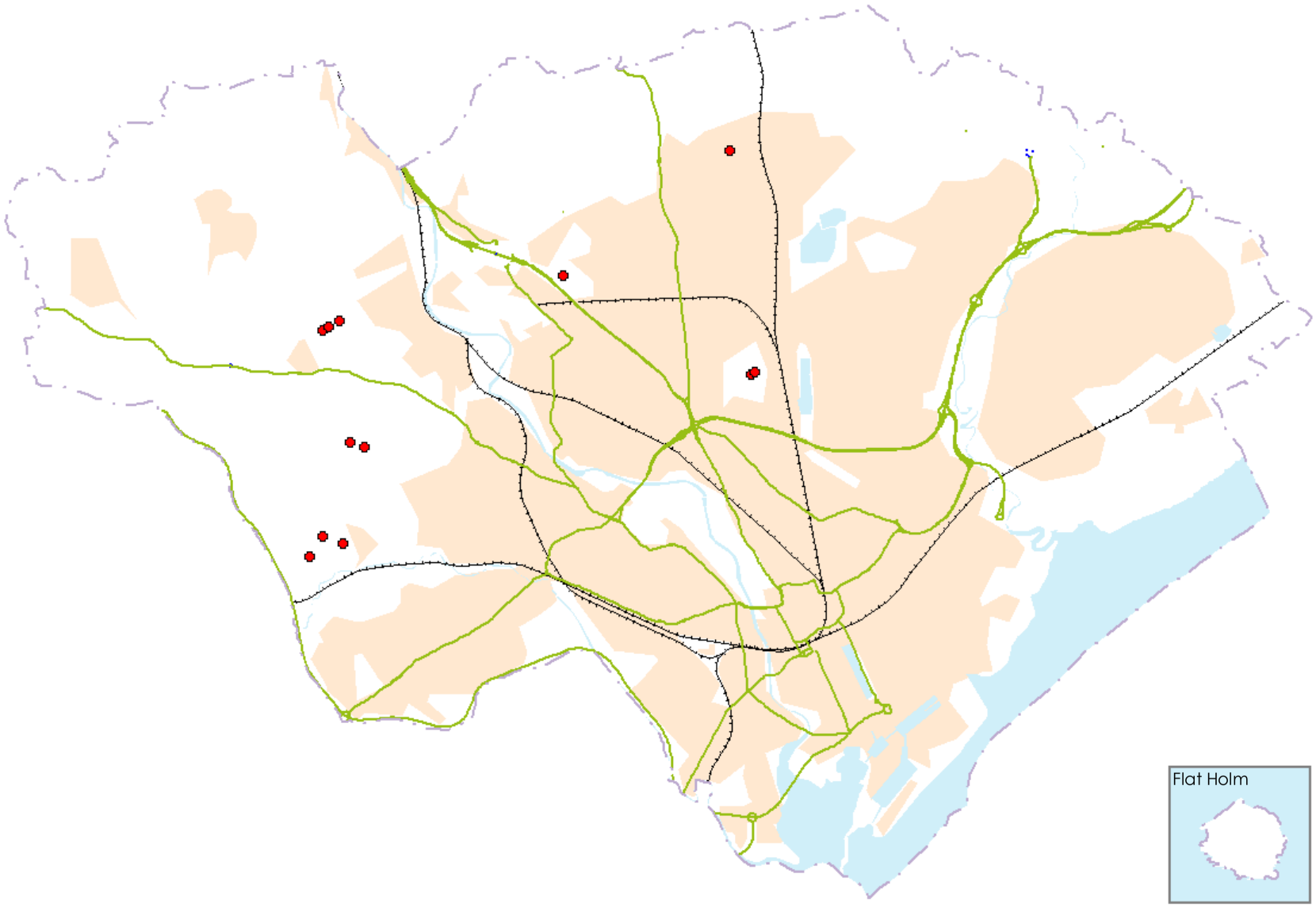
2. Objectives and Actions

Objective 1	Raise awareness of biodiversity and nature conservation within Cardiff.
Action 1	Produce promotional material (i.e. leaflets, DVDs, displays etc) to provide information and advertise groups and events.
Action 2	Share experience of creating and maintaining a web site and provide resource assistance.
Action 3	Promote and take part in national events and programmes.
Action 4	Provide guided walks, talks and other activities.
Action 5	Using a range of media raise awareness of species and habitats in Cardiff.
Objective 2	Provide the opportunity for people to access biodiversity in Cardiff.
Action 1	Produce site interpretation material such as interpretation boards and leaflets. Reproduce this on the Council web page.
Action 2	Improve accessibility of sites for all user groups.
Action 3	Implement the standards set out in the CCW guidance for accessible natural greenspace.
Objective 3	Provide accessible sources of information on biodiversity.
Action 1	Produce 3 Biodiversity Bulletins annually.
Action 2	Ensure all information is up to date.
Action 3	Use BARS to provide up to date progress reports.
Objective 4	Increase the number of people participating in conservation.
Action 1	Promote conservation groups such as Friends Groups and CCV.
Action 2	Offer training through groups.
Action 3	Promote biological recording schemes such as the RSPBs Big Garden Bird Watch.
Action 4	Develop a Business and Biodiversity pack.

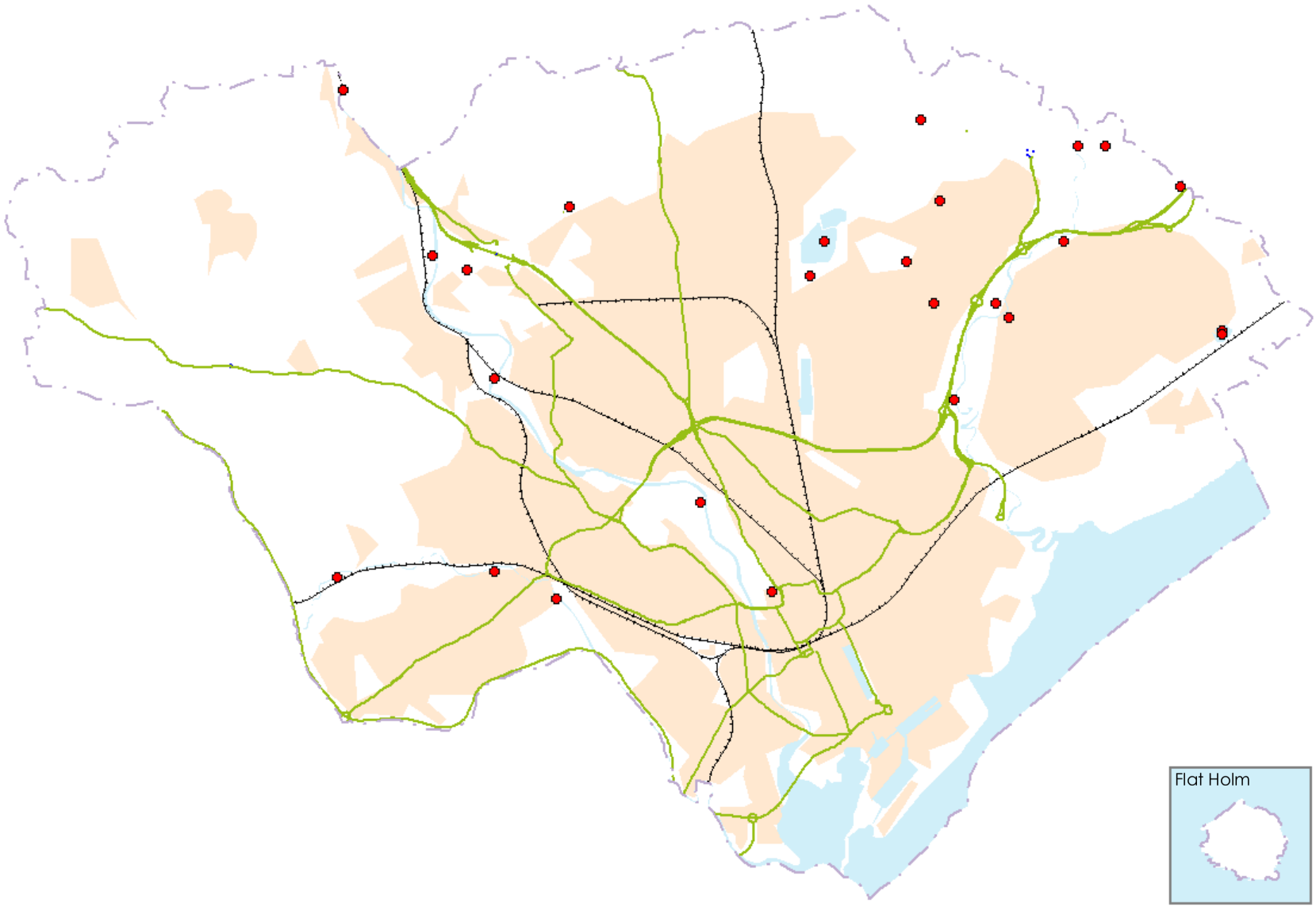
Distribution of Records of Dormice in Cardiff



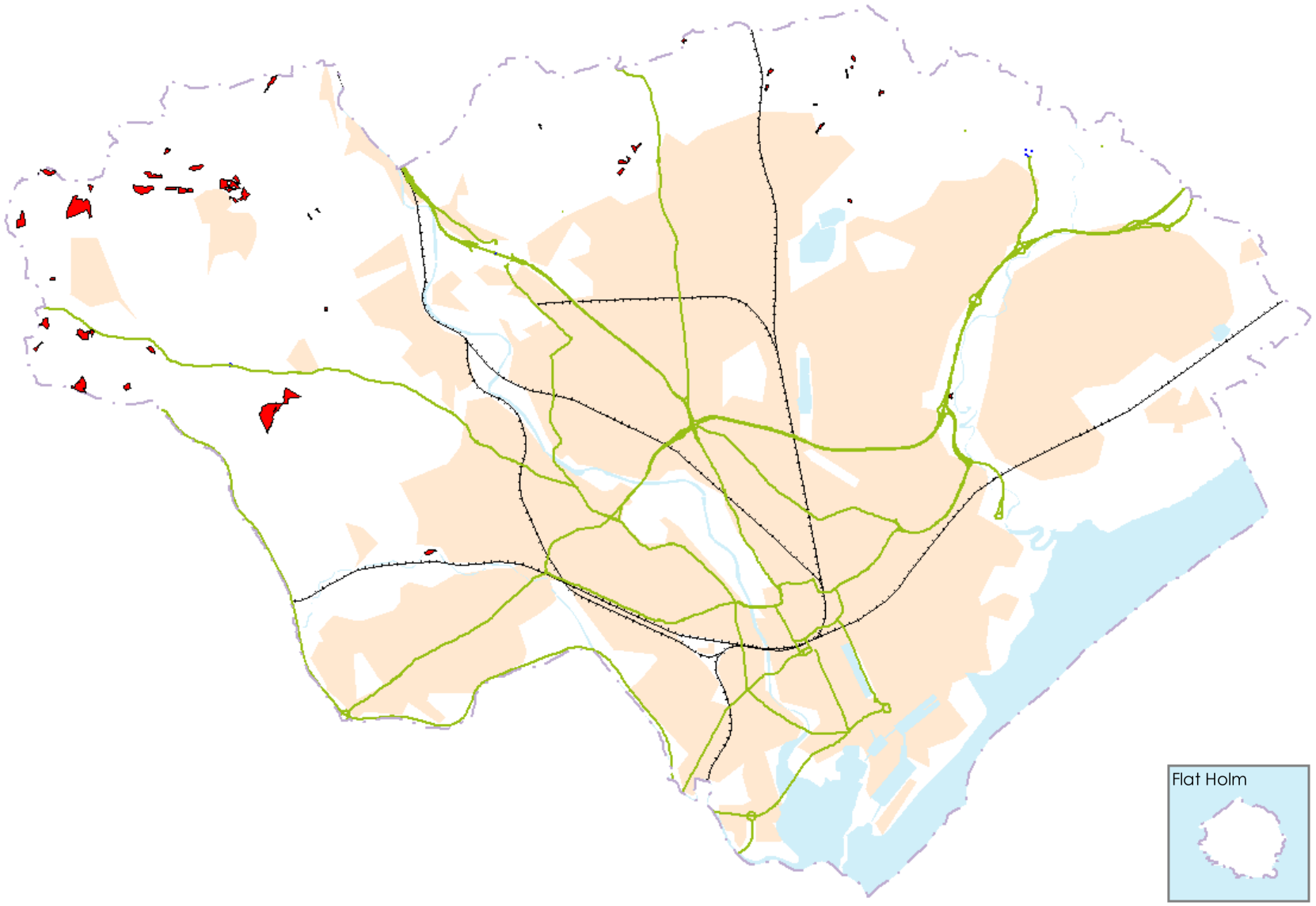
Distribution of Records of Great Crested Newts in Cardiff



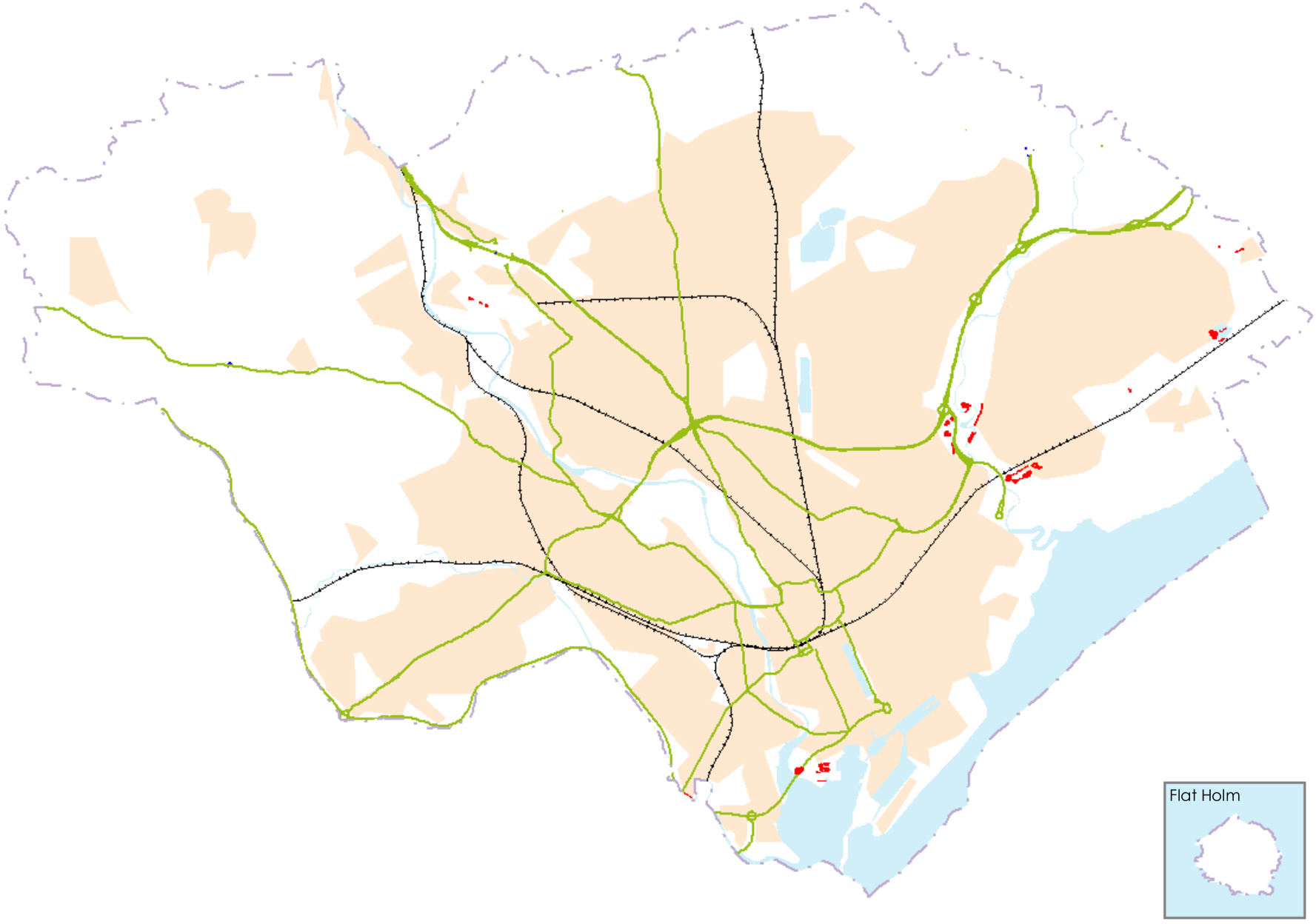
Distribution of Records of Otter in Cardiff



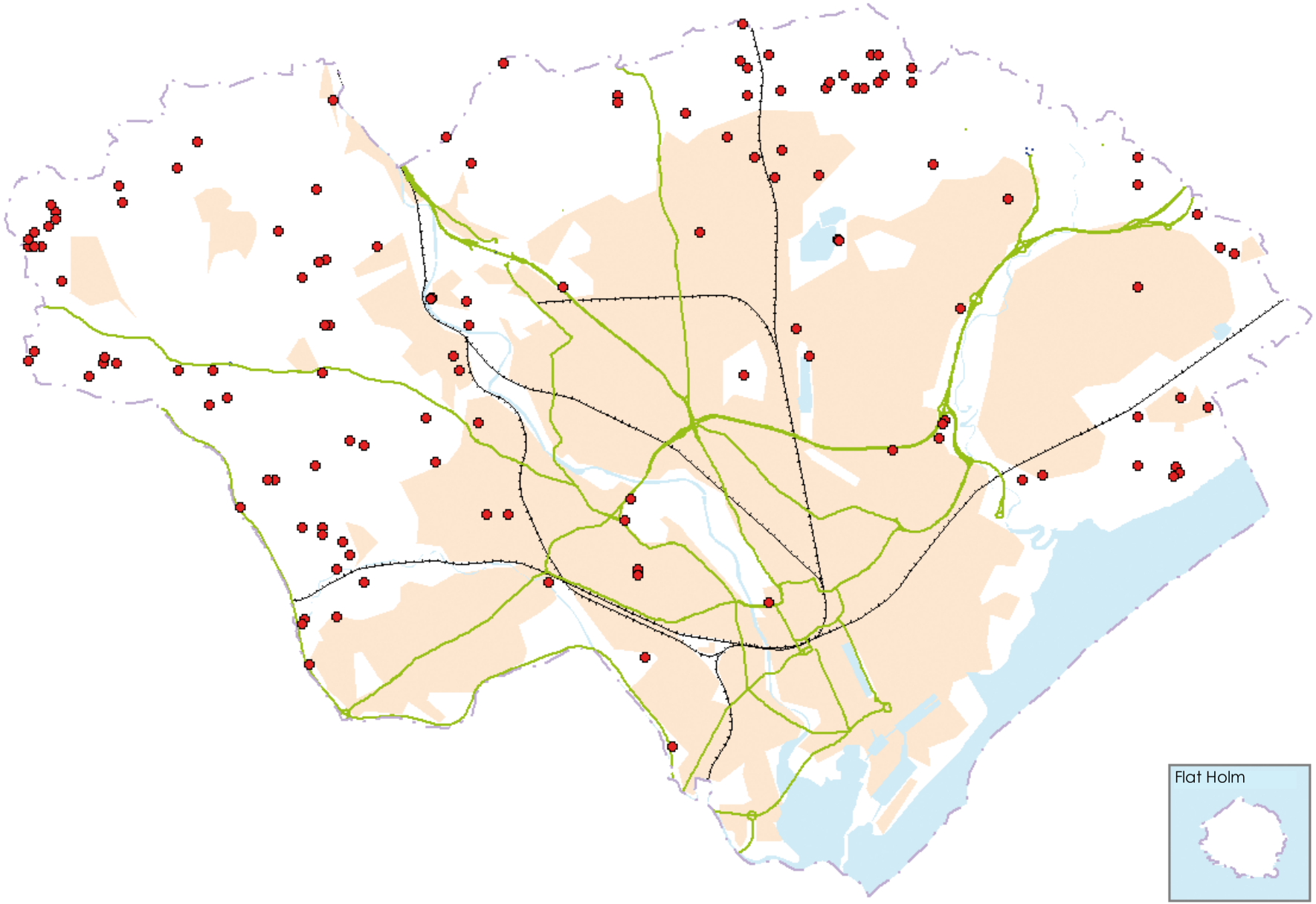
Distribution of Rhos Pasture in Cardiff



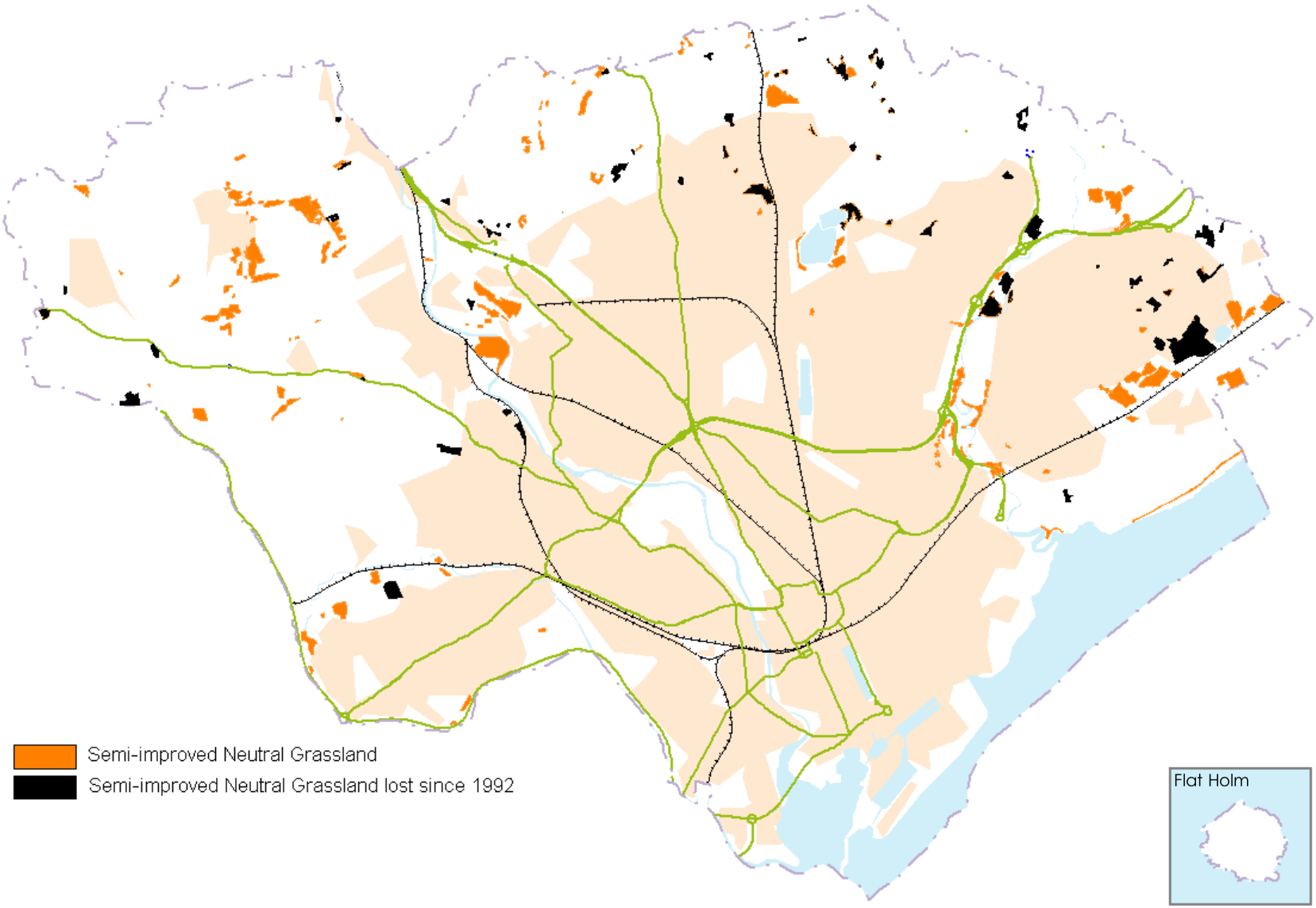
Distribution of Reedbed Habitat in Cardiff



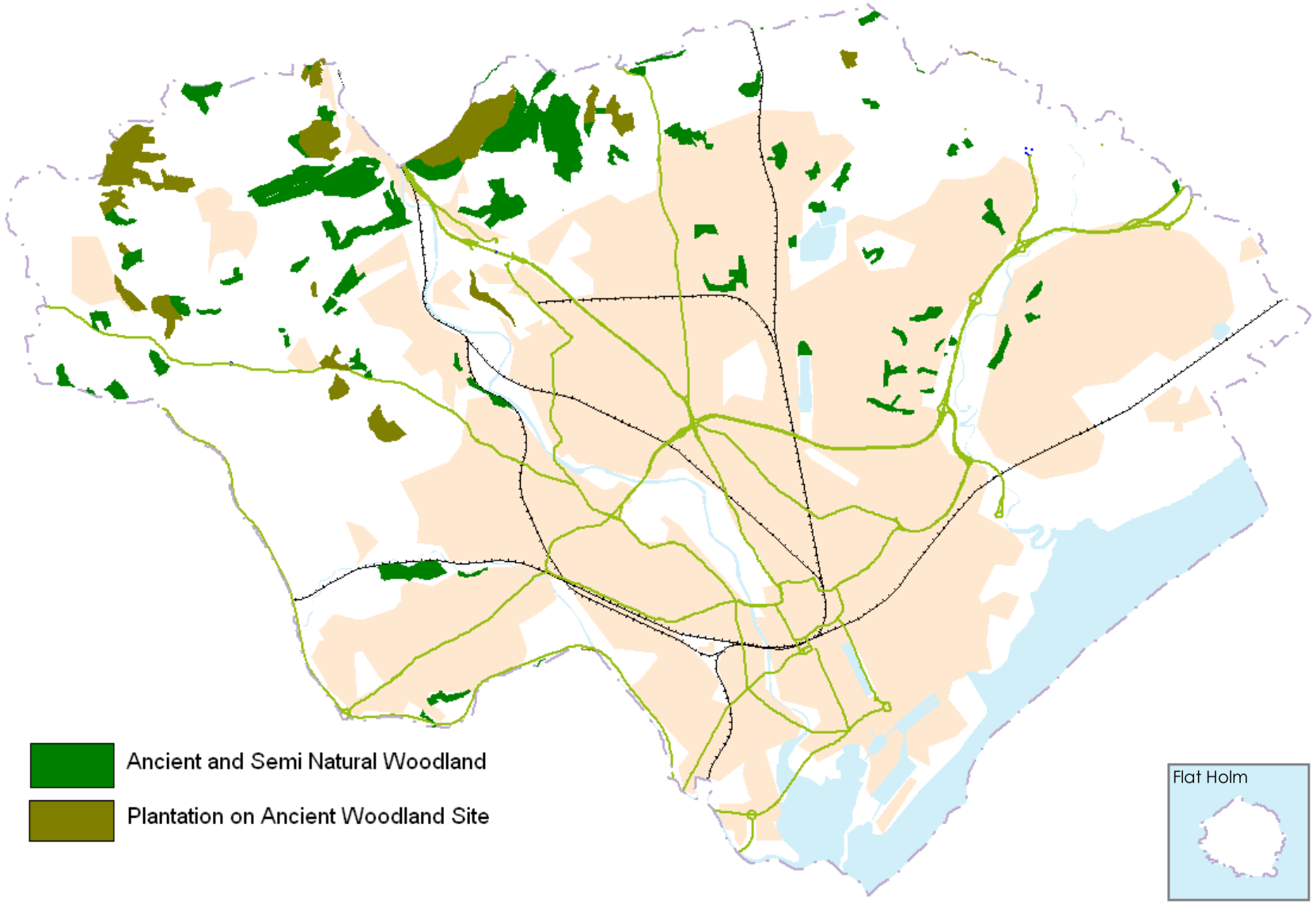
Distribution of Ponds in Cardiff



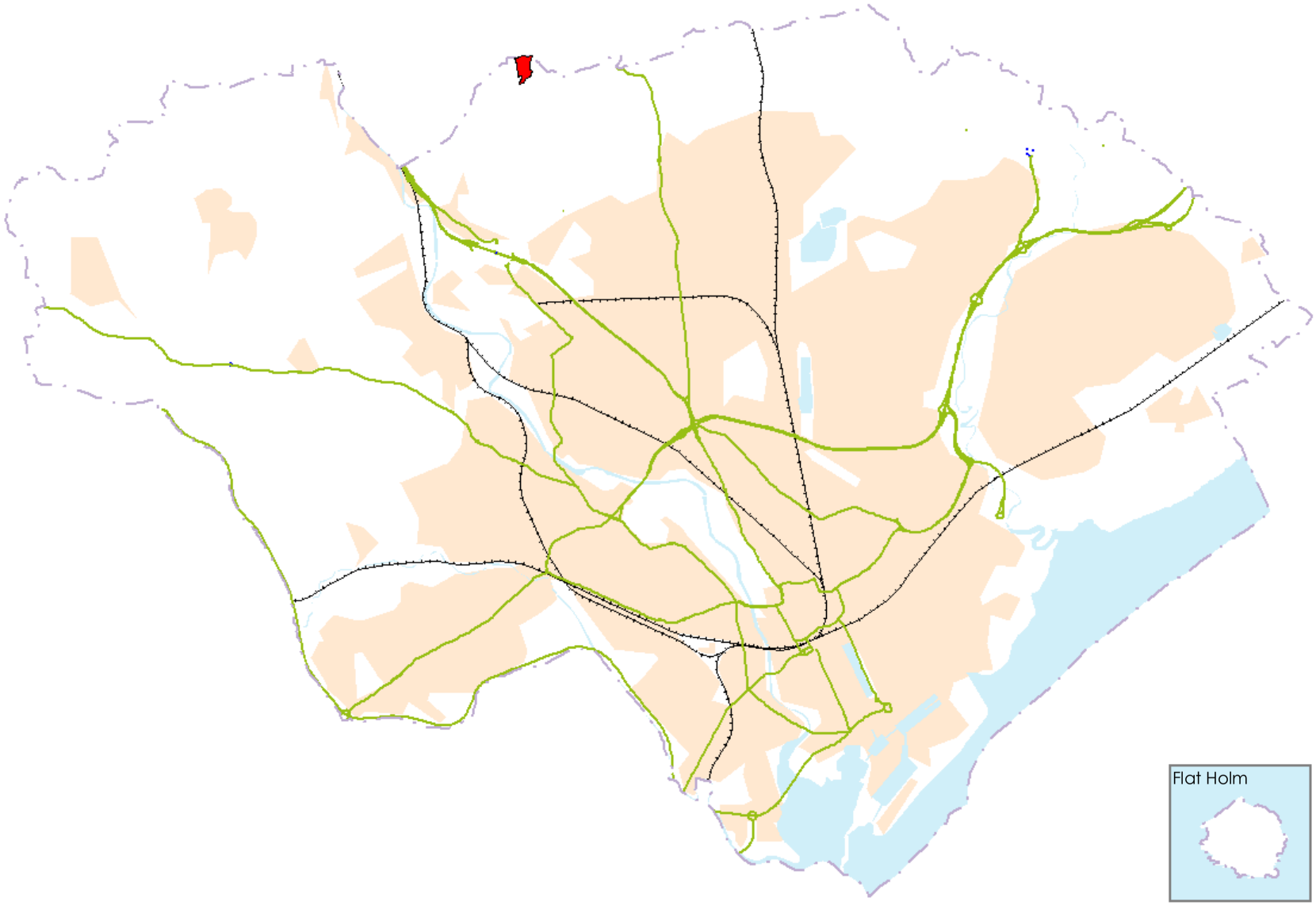
Distribution of Semi-improved Neutral Grassland Habitat in Cardiff



Map of Ancient Woodland in Cardiff



Map of Calcareous Grassland in Cardiff



Strategic Planning & Environment
Cardiff Council