10 Urban habitat action plan

10.1 Urban habitats

10.1.1 Introduction

Wildlife is everywhere; some form of natural life is present in almost every environment on earth. In our towns and cities, wildlife is present despite the actions of the human population rather than because of them. It is not always recognised that the value of urban wildlife to biodiversity conservation can be as great as that in the countryside. Great value is also found in the effects it has on the people who encounter it. These effects are not easily quantified but are increasingly understood to be of considerable benefit. Everyday contact with wildlife can lead to an increasing appreciation of nature conservation, as well as environmental policies in general.

Yet there has been an almost unconscious view that nature should not exist in such places; nature uninvited is often perceived of as untidy, unhealthy, weeds or vermin. Recently however, there has been a change in attitudes towards urban habitats, brought about by an increased public interest in the environment and by a necessity for local authorities to reduce costs. Low cost, low input landscapes where nature is less constrained are beginning to develop in a number of ways. The challenge now is to take these ideas forward in order to maximise the benefits for both wildlife and people.

Urban habitats can be divided into a number of categories. This plan will examine urban habitats under the following headings:

Encapsulated countryside. Areas of semi-natural habitat which persist in the urban area from a more rural past.

Managed greenspace. Those areas managed for recreation or amenity such as parks, school grounds and roadside verges, as well as private gardens.

Naturally regenerating habitats and 'urban commons'. Areas of disturbed ground or non-natural substrates which develop their own self-seeded plant and animal communities.

Urban wetlands. Urban rivers and watercourses, ponds, lakes and reservoirs.

Although there can be considerable overlap between categories, and it is recognised that the built environment itself can be important, these broad definitions provide the most convenient means of dealing with the diverse nature of urban habitats. These categories are discussed in more detail following a general overview of the urban environment.

10.1.2 The ecology of urban habitats

Environmental factors affecting urban habitats will vary because of their position within a built-up area. Depending on the depth of the urbanisation in which a particular habitat is situated, the climate it experiences will be altered in the following ways.

Temperature. In the centre of cities the temperature is usually warmer than the countryside on two days in three and four nights in five. Temperature differences in narrow streets and small open spaces that characterise town centres can be up to 10 degrees Celsius warmer when compared with adjacent rural areas. The effect can be most pronounced on clear nights where areas of high building density form what is termed a 'heat island'. The heat stored in buildings and road materials by day is slowly released overnight. Wind speeds over 12-18 mph will destroy heat islands; they are also severely weakened by cloudy weather. The main biological result of these temperature anomalies is that the active growing season for plants is almost three weeks longer in London and other large cities than in nearby open areas.

Wind speed and humidity. Wind speed is reduced by the frictional drag of buildings but also increased in certain areas by the violent eddies around tall buildings. Thrushes have been shown to choose areas of reduced wind speed for roosting and the use of town centre buildings by Starlings in winter is familiar to most people. It may be that the slightly lower air humidity in urban areas increases the survival of hibernating invertebrates by reducing the risk of fungal infection although there is no scientific evidence for this.

Precipitation. Increases in rainfall of the order of 5-10% are normal over cities, with a corresponding increase in cloud cover. However, the rapid run-off associated with urban hard-surfaces more than cancels out the effect of increased rainfall, so urban areas often experience dryer conditions than the surrounding countryside.

Air pollution. Air pollution in the past was largely derived from industrial sources, the main pollutant gas, sulphur dioxide, still occurring to a lesser degree today. In recent decades the growth of road traffic has led to the increasing significance of exhaust emissions. The most significant pollutants are: nitrogen and its oxides, lead and particulates such as finely divided carbon. The impact of these pollutants on natural communities is difficult to assess as few studies have been undertaken. Most research has been done with crop plants in the laboratory. Broadly the results suggest that lead and particulates can significantly affect the plant-life on roadsides. Nitrous oxide and its derivatives influence plants over a wider area.. It would appear from a number of studies that plants which are influenced by vehicle emissions and other pollutants have increased susceptibility to attack by aphids, beetles, *lepidoptera*, sawflies, red spider mite, greenfly and other arthropods.

The cat and dog factor. Research has shown that a new housing development will introduce between 36 and 55 cats per 100 households into the surrounding environment. Cats are voracious, mainly nocturnal carnivores which will hunt within a wide home range. They kill large numbers of birds and small mammals, their most frequent victims being ground nesting birds and fledglings. An individual cat has been recorded as taking up to 700 birds and small mammals in a year. It is widely claimed that Magpies have a large effect on bird populations. However, scientific evidence does not support this and shows that cats have by far the greatest effect. Dogs are kept by 30% of households and they require daily exercise which is usually taken in the nearest available open space, their excreta contributes to nutrient enrichment. Many dogs retain hunting instincts and will actively seek out, birds, deer and other mammals if allowed off the lead. The effect that this has is largely unstudied but circumstantial evidence shows a lack of ground-nesting birds in urban woodlands.

10.1.3 Encapsulated countryside

The term encapsulated countryside is used to describe areas of semi-natural habitat which have remained undeveloped within an urban area. This may be woodland, parkland, areas of grassland or just ancient trees or a hedgerow. Local examples include Norton Common in Letchworth and Harebreaks Wood in Watford. Some surviving by chance and some by design, many areas of encapsulated countryside are now receiving sympathetic conservation management. New developments on the urban fringe are nowadays often created with woodlands, meadows, hedgerows and farm ponds deliberately retained.

Each type of encapsulated countryside considered in this plan is also the subject of a separate habitat action plan. However, whilst it is recognised that there will be some duplication created by this approach, this document takes the view that the ecological conditions, constraints on management and cultural significance of these habitats are so altered within an urban context that they require separate consideration.

Such urban habitats may have a greater *social* value to local people when compared to an area set in a rural environment because of their position within the immediate surroundings of the homes of large numbers of people. Areas of wildlife habitat will be valued by people of all ages and backgrounds for a variety of reasons. Some will wish to conserve the site and its biodiversity, others will study it and because of ease of access the resulting information and understanding, can be high.

However, there may well be increased *ecological* degradation in urban habitats, associated with high levels of recreational pressure from the local

community; large amounts of dog walking, motor-cycling and informal recreation by children.

10.1.3.1 Woodlands

It is important to recognise that the ecology of an urban woodland may well be altered if it is isolated within the urban environment. The adjacent and associated habitats will be different to those alongside rural woodlands. The general ecology of woodland habitats will be found within Chapter 4, this section will deal with the specific differences in urban situations.

The effect of visitors. A report by Hampshire Wildlife Trust, entitled *Woodland Islands* (Cox, 1995) deals with the isolation of woodlands within urban areas with special reference to Milton Keynes. It recognises that urban woods will very likely receive a high level of use by people. Attempts can be made to balance often conflicting demands and to develop strategies which seek to manage the problems of visitor pressure. The provision of formal paths in certain areas can help to reduce trampling. Improved accessibility to classes of visitor such as families and the elderly can have the effect of reducing the amount of vandalism by increasing the chances of vandals being disturbed or witnessed. There are various designs of barrier that can be used to control access at entrances to woodlands by users such as horse-riders or motorcyclists.

Few studies have been undertaken on the effects of disturbance to wildlife in woodlands. 'Woodland Islands' discusses work done in the Netherlands and Milton Keynes on the effects of disturbance on woodland breeding birds. The responses of birds varies according to nesting strategy and general sensitivity to noise. There is a negative correlation between the breeding density of many species and levels of recreational activity.

The loss of the habitat mosaic which surrounds many rural ancient woods may lead in the urban woodland, to the loss of species which use these surrounding habitats for feeding and the woodland for shelter and breeding. However, other species may benefit; for example woodland birds which have become common in private gardens because of their resemblance to rich woodland edge communities, or Pipistrelle bats which form breeding colonies in modern houses and feed over broad-leaved woodland.

Housing developments. Where housing is developed directly against a woodland there are specific problems which occur including:

- the gradual encroachment of private gardens into the woodland through realignment of garden fences;
- the creation of private gateways into the woods from gardens, leading to widespread trampling of the woodland ground flora; and
- assertive woodland management by the property owner, including the felling of trees which obscure views or shade gardens, the planting of alien and sometimes invasive plants within the wood and dumping of garden refuse.

Urban woodland ecology. An urban woodland will be subject to a heavy seed rain of exotic species and the length of time a particular woodland has been within an urban context will have a direct influence on the numbers of immigrant species present. Cities such as Sheffield and London have urban woodlands of very long standing which can provide useful information. Ecologists in these and other major cities are beginning to build up considerable knowledge of the management and ecology of urban woodlands (see Gilbert 1989).

10.1.3.2 Grasslands

The most important semi-natural grasslands can be divided into three main groups according to soil type: acidic, neutral or calcareous grasslands. These are considered in detail in Chapters 6, 7 and 8 respectively.

The best urban grassland sites will occur in areas of relatively intact encapsulated countryside, these will often be commons, parts of old parkland or grounds of country houses. Also many town parks have their origin in these land uses and the grassland contained within them can often reveal its history through relic flora which have persisted under the later management regime.

10.1.4 Managed greenspace

Managed greenspace includes town parks, gardens, allotments, cemeteries, churchyards, roadside verges and street trees. Such areas are now recognised as being capable of supporting rich wildlife communities. In consequence, there has recently been a wider adoption of more sensitive and informal management practices on such areas. This can range from a reduced use of pesticides, to changes to mowing regimes, planting of bird and invertebrate food plants or even relatively large scale habitat creation. Local examples include Valley Road Open Space at Welwyn Garden City and Butts Close at Hitchin.

10.1.4.1 Town parks

Grassland communities normally occupy between 75% and 95% of a park. By far the majority will be the standard grass sward dominated by Perennial Ryegrass. Mown on average once a fortnight these areas have little value to biodiversity at present. Urban parks can frequently contain good numbers of trees including veteran trees of both native and exotic origin depending on the land-use history. Locally, in Broxbourne, town parks with old timber are important for the declining Stag Beetle. However, in general, trees are normally managed in a very tidy manner in which all dead or diseased wood is removed, leading to a lost opportunity for biodiversity conservation.

Habitat creation within parks and other public open spaces presents opportunities for the enhancement of biodiversity. The types of habitats created will nearly always have low maintenance costs. New areas of scrub, wetlands, hedgerow and woodland could be developed to fit in with areas of more formal design and those set aside for recreation.

10.1.4.2 Gardens

The need people feel for contact with nature together with a growing interest in the environment, and increases in leisure time, have been reflected by the recent popularity of wildlife gardening. In addition to private gardens, the grounds of schools, community centres and housing developments are being gardened for wildlife. This is of considerable significance to nature conservation.

Gardens are generally a mosaic of small habitats formed by lawns, shrubberies, rockeries, old trees, vegetable patches, fruit trees and bushes, hedges, walls, ponds, compost heaps, and the houses and other buildings. It is this variety of habitat that is a key factor in creating the richness of the garden ecosystem.

Gardens can be particularly rich habitats for insects. The abundance of flowers provide nectar and pollen and the mixtures of light, shade and aspect produce a range of micro-climates. Consequently they are particularly good hunting grounds for predators of insects such as birds and bats.

The feeding of garden birds is an increasingly popular activity. Many garden birds are adaptable and the ability to utilise new habitats and food sources is a key aspect of their ecology. Blue Tits opening and feeding from milk bottles on doorsteps is the classic example. Suburban gardens are believed to support the highest density of breeding birds of any habitat in Britain. The regular breeding birds of suburbia are mostly those of open woodland, presumably because the patchwork of garden habitats resembles the richest of woodland margins.

The Song Thrush is a familiar bird of parks and gardens which is currently undergoing a rapid decline in the wider countryside. The reasons for this are not yet clear but the use of molluscicides in agriculture is suspected to be a major factor. Molluscicides are used in gardens as well but on a much smaller and less consistent manner, and it would appear that the Song Thrush population of gardens is not suffering the same decline. Other species common to gardens, which feed substantially on molluscs, are Hedgehogs and Frogs. The use of poisons to kill slugs and snails will have harmful effects on these species and the case for their uncontrolled use by gardeners has to be questioned.

The Fox will live in areas throughout cities including industrial areas and even the inner city but the habitat where their numbers are greatest is suburbia. Their preference is for long quiet gardens with a shed, hedges or other cover to lie up in. The urban fox suffers a high death rate and much-reduced life expectancy compared with its rural counterpart, the largest cause of death is being hit by cars, accounting for nearly 50% of all deaths. This causes significant

Case study – Green Action leaflet

Welwyn Hatfield Council have produced a series of leaflets which aim to help local residents look after the environment. One of these 'Green Action' leaflets is on the subject of nature conservation. The leaflet notably includes a number of ideas on how to improve a garden for wildlife, including pond creation, bird boxes, planting native trees and shrubs, creating a wildflower area, use of a compost heap and reduced use of chemicals.

The leaflet also gives useful contact names and addresses for further information. The leaflet is supplied free to local residents.

differences between fox social structure in urban areas and rural areas where foxes normally live in stable family groups and pair for life.

The Pipistrelle Bat is frequent in suburban areas, selecting with preference modern semi-detached houses, flats and garages in which to establish summer breeding colonies. These can be under hanging tiles, behind barge and facia boards, between soffits and walls or in the apex of gables. Colonies in Hertfordshire average around forty individuals.

10.1.4.3 Road verges

The conservation literature relating to roadside verges is almost entirely concerned with rural verges. However, there are many aspects that both urban and rural verges have in common. Through changes in management and increases in traffic pollution the biodiversity of verges in both the countryside and towns has declined. The effects of car exhaust pollution and de-icing salt is common to both.

A major concern is the maintenance of visibility for traffic. Any planting on bends or at junctions is restricted by specific recommendations that it should not exceed 60 cm in height for a distance which matches the stopping distance of vehicles (60 m at 30 mph). Planting and maintenance of low growing shrubs is costly and so the usual solution is an amenity grass mix. This leads to the 'sterilisation' of large areas of verge. There is the potential for enhanced management of many of these large areas of amenity grass verges. Some sites are already under conservation management, for example, Martins Way at Stevenage.

10.1.4.4 Street trees

Suburban street trees can simulate an open woodland habitat. In recent decades most urban street tree planting has been of smaller ornamental trees, including: Japanese Cherry, Pissards Plum, Purple Crab, Japanese Crab, Birch, Rowan and Swedish Whitebeam. These trees have disadvantages which include the need for regular pruning to lift them above people and traffic, as well as the fruits making a mess and getting trampled into homes. New species and cultivars are continually being investigated in an effort to find the ideal street tree for each situation. The advantages of street trees include their effect on moderating the climate, filtering out pollution and dust in the air, and reducing noise. They support birds and invertebrates and provide an impressive and tangible contact with nature which connects people with culture, mythology and religion.

Recently, threats to street trees have come to the fore with the increase in trenching operations to install cable technology and the repair of underground utilities infrastructure. Tree roots have been damaged and the effects have been compounded by severe drought and pollution stress caused by record traffic and high sunlight levels.

10.1.4.5 Allotments

The open spaces provided by allotments can provide a significant wildlife resource in urban areas. Many species of birds will breed or feed in such areas. Compost heaps will support a variety of invertebrates and not infrequently, Slow-worms or even Grass Snakes. The regular cultivation of allotment plots has also provided a refuge for certain arable weeds. The variety of the wildlife will depend on the state of

cultivation of the allotments and their situation. In St Albans for example, the Riverside Road allotments adjacent to the river Ver contain old watercress beds and a rich mixture of wetland and urban wildlife has developed.

10.1.4.6 Churchyards and cemeteries

Commercial cemeteries began to be developed in the nineteenth century when churchyards could no longer cope with the needs of an expanding population. They were followed by hundreds of local authority cemeteries which did not need the prestigiously designed layouts of the private sites to attract the custom. These public cemeteries tend to be formally laid out and maintained to 'park' standards, allowing less room for the development of wildlife-rich habitats. The private cemeteries went into decline however, and became neglected. Those, which remain, form characteristically wild and overgrown areas of great wildlife value.

Cemeteries often contain areas of old grassland and woodland, which survive alongside the newer communities of sycamore, bramble and ivy, which colonise neglected corners. These mixtures of old and new, together with areas of mown grass and various stone-based habitats can support a rich variety of wildlife. The walls and gravestones in particular can support valuable populations of lichens and mosses. Nearly all churchyards will pre-date the cemeteries and may contain some very ancient features. Some abandoned cemeteries and churchyards are now cared for by voluntary groups who have wildlife conservation as one of their main aims. A prime example is Highgate cemetery in north London.

10.1.5 Naturally regenerating habitats and 'urban commons'

Where 'uninvited' nature is concerned, perceptions are also beginning to change. The habitats that developed along canals and railways were amongst the first to be recognised as of value but now there is growing awareness of 'urban commons' (Gilbert 1991). They are characterised by plant communities, which naturally regenerate on the rubble of demolition sites, disturbed ground and industrial wastes. In such situations new habitats and associations of species are arising, providing a rich resource for study.

10.1.5.1 Urban commons

The greatest concentration of urban commons is to be found in the inner cities, where land for redevelopment lies unused for long periods. However, most towns contain some areas of wasteland that is covered with naturally colonising plant communities, often including a high proportion of garden escapes and naturalised exotics. These plants grow alongside native species recruited from a wide range of habitats. The succession first described by Gilbert (1991) is from early colonisers to tall herb, to grassland and then scrub, which develops into open woodland. The importance of this vegetation is that it is composed of an assemblage of species, which are well adapted to urban conditions. Factors which determine their composition, include the substrate (commonly brick rubble, concrete or cinders), the level of disturbance and the local seed sources.

10.1.5.2 Spontaneous secondary woodlands

Spontaneous secondary woodland is not particularly common in towns, as new woodland, where required, is usually planted. The best examples occur on neglected sites such as abandoned allotments, railway land, old cemeteries and strips beside roads and rivers. The most important factor in determining the composition of the plant community is the range of nearby seed donors. However, underlying geology, soil substrates, hydrology, disturbance and regional climate will all also have an influence. It is assumed by many that spontaneous secondary woodland in urban areas will be dominated by Sycamore. However, this is not the case and although dense stands of young Sycamores can be found there is not much evidence that they convert to Sycamore woodland.

10.1.5.3 Railway land

The use of a wide variety of materials to make the ballast on which railway tracks were supported led to the creation of new habitats. The ballast was designed to be exceptionally free draining, unyielding and open in structure. The origin of this material was sometimes local but often distant. Along with this material came seeds of plants new to the county, notably coastal plants established with the importation of seaside ballast. Other sources of introduction were the cargoes

of freight wagons, seed from grain, hay, wool waste and straw used as packing material.

The habitats formed along the track, on cuttings and embankments, allowed the spread of plant and some animal species into the heart of towns and cities. A classic case is that of the Oxford Ragwort which was introduced into Oxford from Europe in the 18th century and spread throughout the railway system in the 19th century.

At first the habitats were very open. Regular maintenance and frequent fires caused by cinders from steam engines favoured those plants adapted to the harsh conditions of the ballast and the thin-soiled steep-sloped cuttings. With the increase in labour costs and the decline of the railways, most of the old herb-rich grassland and open rocky habitats have been succeeded by the rank grassland and scrub that is familiar to those who travel by train today. Maintenance is kept to the minimum required by safety, the track kept clear of vegetation by spray trains using powerful herbicides.

10.1.5.4 Urban walls

Britain's mild wet climate supports some of the finest examples of wall vegetation in Europe. Vegetated urban walls can provide wildlife interest and local character in an otherwise heavily built-up area. Wall habitats have provided a number of native plant species, usually restricted to coastal cliffs or upland Britain, with a means of colonising the lowlands. At least a dozen introduced plants have their British strongholds on walls. Assemblage composition is determined by geology and the local seed sources and so may reinforce the local distinctiveness of wall communities.

The colonisation of walls is favoured by age, the presence of lime mortar, any aspect other than south, exposure to rain and angle of inclination. Most true wall species are found only on vertical walls; as the gradient decreases an ever-widening range of common species are able to colonise.

10.1.6 Urban wetlands

Chapter 5 deals with wetlands, their ecology and conservation in the wider countryside, this section is intended to highlight the particular aspects of urban wetland ecology.

10.1.6.1 Urban rivers

Rivers form important corridors of mixed habitat as they flow through urban environments. Where their channels are not too severely engineered and water pollution not too intense, they can be the richest of all urban wildlife sites. Some of the habitats are extremely complex, with conditions changing with each variation in water depth, flow rate, substrate type and aspect.

Amongst the restrictions on the full development of riverine wildlife are pollution, scour, unstable substrates, low flows, artificially lined channels, culverting, disturbance by anglers and dominance by aggressive alien plant species. In order to reach its maximum vitality the continuity of the watercourse should not be interrupted so that it becomes a series of isolated sections. In the urban environment there is extremely rapid run-off of rainfall. The ‘flashy’ nature of urban watercourses is further accentuated by the loss of water recharge to the ground water-table, which means base flow decreases; as a result water courses are subject to severe scouring followed by drying out.

10.1.6.2 Water quality

Water quality deteriorates with increasing urbanisation as surface run-off carries with it increasing loads of pollutants and sediments. Rain falling onto towns has the beneficial effect of washing away much of the accumulated dirt from the previous dry period. However, the result is that stormwater may contain a wide variety of pollutants including suspended solids, nutrients (nitrogen and phosphorus), toxins (including heavy metals and pesticides), pathogenic micro-organisms (bacteria, viruses and others), oil, detergents and de-icing chemicals. The problems of pollution by sewage and industrial wastes is not confined to urban areas. However they more often have their origins in urban areas and so the effects are most concentrated there.

10.1.6.3 Canals

Canals in urban areas can be wildlife resources of outstanding value. Developed mainly between 1758 and 1805 they are amongst the oldest structures in

towns and have had a long time to develop interesting communities of plants and animals. Their early origins mean that they often pass through the centre of towns, especially industrial areas. Canal systems have been the point of introduction and main route of spread for many plant and animal species. The factors which have the greatest effect on the biodiversity of canals are water levels, boat traffic and water quality. Boat traffic increases turbidity, which inhibits the growth of submerged plants whilst the emergent and floating vegetation is effected by the direct physical action of boats and their wash.

10.1.6.4 Amenity lakes

The artificial lakes of public parks are often required to meet heavy recreational demand and as a result may be put under severe ecological stress. The problems common to such water bodies include: over-enrichment with nutrients; turbid green water due to high algal content; blooms of toxic blue-green algae in hot weather; banksides in need of repair and devoid of vegetation; a lack of submerged or bankside aquatic plants; and high populations of waterfowl, particularly Canada Geese.

Over-enrichment of water-bodies has many sources, including: supply from nutrient-rich waters of urban rivers; surface run-off; heavy sediment loads from leaf fall from surrounding deciduous trees; and the droppings of large numbers of waterfowl. Much larger numbers of waterfowl are often attracted than would naturally occur due to ‘feeding the ducks’. They also cause problems through fouling and trampling the banks and over-grazing of vegetation.

Areas of open water act as a magnet to many people, especially children. This can lead to trampling of waterside margins, causing erosion and loss of specialist ground flora. They are also often the focus for dumping and littering. This rarely has a significant effect on the ecology of these habitats but is mainly a problem through making them appear unpleasant and uncared for.

10.1.6.5 Ponds

Urban ponds have two principal origins. Firstly there are those of encapsulated countryside, where villages which have become merged with towns through the expansion of the urban fringe. These ponds can often be of considerable age and may be of great wildlife value. They may also act as sources of colonisation for the second type of pond; the large number of specially created ponds in gardens or parks.

Ponds vary greatly in their ecology as a result of their morphology, surrounding habitat and their stage in the process of succession. Ponds are naturally ephemeral, starting from a newly created depression filled with water. They are colonised by plants and animals adapted to the particular conditions present. Organic matter builds up in the pond and silt deposits accumulate. Plants around the margin move progressively towards the centre of the pond. The pond succeeds to damp ground and eventually woodland. All the different stages in pond succession have value for the maintenance of biodiversity, some have more aesthetic appeal than others.

Unfortunately the fashion in wildlife gardening is to create a standard ‘multi-purpose’ pond which attempts to produce a small amount of each of several micro-habitats. The habitat conditions are suitable for common species of pond wildlife but do not cater for those with more specialist habitat requirements.

Garden ponds are typically small and shallow, get topped up with tapwater and have a surface area of less than six square metres. Most are lined with polythene, fibre glass or concrete. Being newly created and of artificial origin they are usually stocked with a variety of plants bought from commercial suppliers to which others collected from the wild are added later. However, natural colonisation is frequently rapid. Midges lay their eggs, water boatmen, pond skaters and water beetles fly in, whilst molluscs hatch from eggs introduced with water plants.

Garden ponds have turned out to be ideal habitats for several amphibians. The Common Frog, declining in rural parts of Britain, is thriving in garden ponds.

Newts prefer ponds which do not contain fish, have a surface area of less than 200 square metres, a 5-50% cover of vegetation and a depth of 0.5 to 1.0 m. Amphibians in general like a dense vegetation around part of the perimeter of the pond. The abundance of such habitats in suburbia, together with a fair amount of introduction, has enabled Smooth Newts to become

widespread in urban areas. At the same time loss of breeding habitats in the countryside has led to a national decline. Newts live on land for long periods of time and are as likely to be found in moist nooks and crannies, amongst moss and in rockeries as in the pond. Great Crested Newts are more particular in their choice of breeding sites, preferring larger, deeper ponds. Fewer garden ponds are suitable habitat for this species.

10.2 The history of urban habitats in Hertfordshire

The urban pattern of Hertfordshire is the result of the long-term expansion of the older settlements together with the planned location and development of newer areas. Most of the major towns in Hertfordshire were little more than villages at the beginning of the nineteenth century. There is also considerable difference in terms of ecology, structure and development between real villages and the old market towns characteristic of the county. The impact of the Industrial Revolution was mainly through the need for increased transport access to London, provided by railways, canals and roads. The railways facilitated the expansion of London commuter settlements, especially in the south of the county, and the overflow developments of Garden Cities and New Towns. As the importance of the railways declined, roads increased in recent decades with the M1, A1M, M10 and M25 all passing through the county and supported by a comprehensive network of re-engineered 'A' roads.

The Victorian zeal for social reform led to the creation of city and town parks. Their original purpose was to improve the health and enjoyment of working people, partly through altruism and partly through the self-interest of the rich and powerful who thought the benefit would be to reduce social unrest and increase efficiency and productivity. The social engineering philosophies of the Garden Cities and New Towns follow on from these Victorian concepts.

Many of the older parks in urban areas have their origins in the private grounds of eighteenth and nineteenth century houses, donated by philanthropic individuals. The landscape design of these parks was inherited from the private estates whose design philosophy had been based on the picturesque style, drawing from the concepts of French landscape painters such as Claude and Poussin. The concept was one of 'Man in harmony with nature' although in reality nature was controlled and constrained.

When the parks in Hertfordshire's towns were created, this concept was already established and a number follow this idea. However, this concept was not followed in all cases by any means and a variety of origins are to be found. Fine examples of parks occur in Gadebridge Park, Hemel Hempstead (based around a house), Fairlands Valley Park, Stevenage (originally farmland) and Letchworth (laid out in the fashion of Versailles). Stevenage, Hemel Hempstead and Welwyn Garden City were all developed with deliberately 'encapsulated countryside'.

Civic pride was a determinant of the character of parks and a very high standard of maintenance was achieved. However, as the 19th century progressed the parks began a long period of decline. Increasing needs for active recreation were met to some degree but the training of park staff remained horticulturally based. The role of parks became uncertain as people's incomes and mobility increased and leisure opportunities diversified. Today the resource allocation to parks continues to be run down, increasing opportunities for the introduction of low-cost informal management which favours wildlife. A new vision of people in harmony with nature needs to be created, with designs and management techniques which fit in with modern values and aesthetics.

The garden has a long tradition in Britain dating back to the pre-industrial era. The stable political system compared to the situation in continental Europe meant that cities were not compact and fortified and there was space for gardens. The pattern of the countryside could be maintained, that of single-family houses with garden plots. Consequently there is a much higher provision of gardens in England and Wales compared to other European countries with an estimated 15 million gardens covering 3% of the land surface. In

towns, residential areas may cover over 60-70% of the total built up area.

Throughout the Industrial Revolution single-family dwellings continued to be the norm but garden space was limited. It was during this period that the creation of urban allotments began. The major influence, which reinstated the private garden to its former, or perhaps greater, prominence was the 'Garden City' movement pioneered by Ebenezer Howard and Raymond Unwin at the turn of this century. They promoted the idea of 12 dwellings per acre (28/ha) by practical example in Letchworth.

In 1918 the *Tudor Walters Committee Report* officially recognised the importance of gardens and from then on their provision was almost universal. The early New Towns were characterised by low density building and generous garden provision. Hertfordshire, with a number of Garden Cities and New Towns, is therefore particularly well endowed with gardens and managed open space.

10.3 Urban habitats in Hertfordshire – current status, trends and threats

10.3.1 Current Status

Nearly 90% of the population of Hertfordshire live in urban areas (towns with populations over 5000) and 60% live in the 10 major towns each with a population of over 30,000. The majority of the ten major urban centres fall into two main categories: New Towns or Ancient Market Towns. Outside of these categories are the more industrial areas around Watford and the conurbations of the Lee Valley close to London (Cheshunt/Waltham Cross and Hoddesdon).

The ancient market towns have densely built centres with old established walls and other architectural features, built from natural materials, which often support specialist communities of ferns, lichens and invertebrates. They are frequently built on the banks of rivers, which have undergone modifications such as the formation of weirs and watermills for light industrial uses.

The outer suburbs of the ancient market towns have much in common with the New Towns, with large areas of low density housing with gardens and substantial amounts of open managed greenspace. With the growth of urban development during the twentieth century being largely areas of housing, the character of much of the built environment is suburban. Compared with large industrial towns and cities in other areas of the country, the urban areas of Hertfordshire can be characterised by the low proportion of 'urban commons' and self-regenerating scrub and ruderal communities of vacant land. This may be explained by the prosperity of the county and it's proximity to London, with high land prices and strong competition for vacant land. This is increased by the restrictions on town expansion imposed by the Green Belts, ensuring that few areas remain undeveloped for long. In Hertfordshire the Green Belt covers 40% of the county and envelops all the main towns except Royston. Hertfordshire's urban areas are further characterised by the presence of one or more watercourses.

The following section is not a comprehensive catalogue but highlights some of the urban habitats present in the county. Part of the difficulty in quantifying the urban habitat resource is its variability and the limited study of these habitats.

10.3.1.1 Stevenage

The predominant superficial geology underlying Stevenage (population 75,000) is decalcified Chalky Boulder Clay, and in areas where this is disturbed, such as along major road developments, the underlying chalk is exposed. A good example of this is the chalk bank on Martins Way, noted for its valuable plant community. The urban area of Old Stevenage has a distinct ecology when compared to the rest of the town.

Encapsulated countryside. Substantial amounts of encapsulated countryside were deliberately incorporated into the New Town layout in Stevenage, including woodlands, grasslands and several river corridors. The woodlands are of special significance including fine examples of Oak-Hornbeam stand-types

which support key species such as Dormouse, Violet Helleborine Orchid and Bluebell. The grasslands have generally declined under unsympathetic intensive mowing regimes but still include some important sites.
Key sites: Monks and Whomerly Woods, Whitney Wood, Ridlins Wood, Ridlins Mire, Stevenage Lodge Grassland and Shackledell Grassland.

Managed greenspace. The Stevenage District Plan adopted in 1994 only recognises a limited range of greenspace in listing sites of local importance. In general, areas such as school grounds and allotments, are not considered for their wildlife value. However, the town includes a large area of amenity and verge grassland with variable amounts of wildlife value. There is considerable potential for enhancement with the adoption of more sympathetic management regimes. This is particularly true at Fairlands Valley where such management could link and buffer Wildlife Sites.
Key sites: Fairlands Valley and lakes, Martins Way verge, Pin Green School.

Naturally regenerating habitats. The industrial area to the west of the railway contains areas of urban common and other industrial habitats. These areas have received little or no attention, the railway land itself needs surveying, but are known to support some scarce species. For example, Hertfordshire's only Black Redstarts nested amongst the building works on the Glaxo Wellcome site. An area of post-industrial rubble and hard standing off Gunnels Wood Road was the site for a pair of nesting Little Ringed Plover in recent years.
Key sites: Norton Green tip.

Urban wetlands. Apart from their landscape and natural habitat value, the encapsulated river corridors serve an important role in controlling the surface water run-off from the town. The district plan describes how the natural floodplains of the river corridors have in places been converted into 'water meadows' and storage ponds, which temporarily store run-off during storms. These areas present valuable opportunities for habitat enhancement or creation.
Key sites: Fairlands Valley lakes, Elder Way flood meadows, Stevenage Brook.

Building development on the north-east of the town, known as Wellfield Park, is likely to 'encapsulate' several ancient woodlands and bring them under increasing influence of an urban environment. Brooches, Hangbois, Claypithills Spring, Pryor's Wood and Box Woods will be affected. The latter sites in particular are of high wildlife value. The greatest threat will come from the potential disturbance from people and the 'cat and dog factor'. There are opportunities for habitat creation within this scheme. The proposed development to the west of Stevenage will likewise increase pressure on the highly significant Knebworth Woods SSSI as well as a number of smaller Wildlife Sites. Should this development proceed, it is imperative that effective buffering of these sites is incorporated, as well as greenspace within the development.

10.3.1.2 Hemel Hempstead

The underlying superficial geology of Hemel Hempstead changes from Clay with Flints on the higher ground, to chalky or gravelly deposits and then recent river alluvium as the land dips into the valleys of the rivers Gade and Bulbourne.

Hemel Hempstead New Town (population 80110) was built around the same time as Stevenage and has a similar character with large amounts of encapsulated countryside. In 1992 the Herts Environmental Records Centre produced a survey and assessment of the sites of urban wildlife importance in Hemel Hempstead.

Encapsulated countryside. The survey identified 18 sites, which it classed as being of Borough Importance, Grade A. The majority of sites of this highest classification fit into the category of encapsulated countryside and include some of the town's best examples of grassland, woodland and wetland. Typically the ancient woods in this area are of Oak-Hornbeam, usually with a rich ground flora which includes Bluebell and Wood Anemone.
Key sites: Shrubhill Common, Boxmoor, Paradise grassland, Howe Grove and Widmore Wood.

Managed greenspace. The larger examples of this category form the bulk of the second level classification of the survey, Grade B. They include most of the secondary school sites, some of the primary school sites and several of the major playing fields.
Key sites: Playing field south of Queensway, Highfield

Lane, Northridge Park, Warners End playing field, Piccotts End Lane playing field and Gadebridge Park.

Naturally regenerating habitats. One site representing self-sown habitats of recent origin was listed as being of Borough Importance but is now largely developed. Jarmen's Fields comprised 8 ha of tall herb and scrub, only remnants remain. Other areas of scrub such as the disused railway line, bus garage car park and filter beds contribute to a combined area of scrub which totals less than 10 ha.

Urban wetlands. Amongst the many wetland areas of the town there are five balancing tanks and reservoirs, three of which were surveyed. These wetlands represent an important under-utilised resource for the enhancement and creation of areas of high biodiversity.
Key sites: Maylands balancing tank, Redbourn Road reservoir, Bennetts End balancing tank.

Several areas are threatened to various degrees, particularly Paradise grassland where built development is proposed. The retention of a wildlife corridor to maintain 'green links' has been suggested.

A major area of opportunity exists at Bunkers Lane where the development of a public open space adjacent to the Wildlife Trust's Long Deans nature reserve is including the creation of woodland, hedgerow and grassland habitats. The site will be managed to maximise benefits to both wildlife and local people.

10.3.1.3 Letchworth Garden City

Begun in 1903, Letchworth was the world's first 'Garden City'. Designed as a compact urban development, it incorporates the advantages of both town and country living. It has an agricultural estate, designed as a source of industry and a major contributor to the town's economy. It forms a surrounding 'green belt'; although today the Letchworth and Baldock conurbations are only separated by the A1M Motorway and so could be considered as one single urban area.

The total area of wildlife-rich habitat within the urban areas is relatively low. This can partly be explained by the compact nature of the built-up area and it's relatively recent and even-aged development. However, it is also a reflection of the lack of such features in the landscape on which it was built. Most of the preceding features (hedges, shelterbelts etc) still exist in the urban environment. It is worth noting that the same cannot be said of the surrounding countryside. Dominated by arable agriculture on the productive chalky soils, the effects of modern agriculture have led to there being few wildlife habitats of value remaining. Habitats around the urban fringe have sometimes avoided the effects of the agricultural changes for various reasons. Grassland, for example, has all but disappeared from the wider countryside, but is retained in and around the urban areas.

A Habitat Survey for Letchworth Garden City (HMWT 1996) included both the built-up area and its surrounding agricultural estate. It found that encapsulated countryside and managed greenspace were well represented but that 'urban commons' were all but absent.

Encapsulated countryside. Grasslands are particularly well represented. Neutral grassland forms the largest ecologically valuable habitat and represents 1.28% of the estimated 946 ha of the remaining resource in Hertfordshire. Calcareous grassland is relatively scarce considering the geology of the area with only three fields of semi-improved calcareous grassland: two at Norton and the third, which is developing an increasingly diverse flora, at the edge of the industrial estate. The majority of chalk grassland was found on road verges and on a railway cutting forming linear habitats of 1350 m in extent.
Key sites: Norton Common, Radwell Meadows, Letchworth Golf Course. Norton Common is a classic example of encapsulated countryside with high wildlife and historic interest, whilst Radwell Meadows and Letchworth Golf Course are on the urban fringe.

Naturally regenerating habitats. Very few sites are present which fall into this category.
Key sites: Playing fields north of Sollershot.

Urban wetlands. Two ponds are known to support Great Crested Newt; Willian Pond and Norton Pond, both being remnant countryside features on the urban fringe.

The incorporation of biodiversity objectives into the management of the rural estate has the potential to significantly enhance the urban fringe habitats.

10.3.1.4 St. Albans

The historic city of St Albans is centred largely on glacial and river terrace gravels together with areas of clay-with-flints and Argillic Brown Earths. The city has a dense medieval centre surrounded by areas of up-market housing.

Encapsulated countryside. St Albans is well endowed with large gardens and mature trees but has very little encapsulated countryside.
Key sites: Bernard's Heath, Beech Bottom Dyke, the Wick woodland.

Managed greenspace. The major area of managed greenspace in St Albans is Verulamium Park. This site has great potential for habitat enhancement in the current relatively sterile landscape. This is particularly relevant to the river Ver as it flows through the park and beyond (see below). The Riverside Road watercress beds and allotments, which are associated with the river Ver corridor are being managed as a nature reserve by a local community group.
Key sites: Verulamium Park, Fleetville Cemetery, Clarence Park, Riverside Road allotments, Sandpit Lane.

Naturally regenerating habitats. The Alban Way is disused railway line designated as a foot and cycle path. It has good mature scrub communities and is associated with other areas of open greenspace along its length, including the river Ver and associated habitats, a golf course, allotments, gardens, and a number of small urban common sites.
Key sites: Smallford gravel pit, Alban Way.

Urban wetlands. The lake in Verulamium Park suffers from many of the problems typical of amenity lakes, although good efforts have been made to redress them. The river Ver has a poor diversity of habitats along the section which flows through the park and neighbouring urban areas. At present, the condition of the river in St Albans presents a break in the continuity of habitats and thus a barrier to the recolonisation of species lost from upstream during the dry period.
Key sites: Ver corridor, Verulamium Park, Sopwell Meadows.

The Alban Way is an excellent example of a green transport link joining a number of open spaces and perhaps providing an alternative travelling route to and from work. However there is a need to take up the opportunities that this good start now presents. Continuity of route needs to be established with Verulamium Park and the city centre. The original facilities should be refurbished and then connections could be made with other green transport links across the city. Other key issues include the retention of greenspace in the hospital re-developments and the management of the Smallford gravel pit area. Ecological principles should figure prominently in both.

10.3.1.5 The Lee Valley

The Lee Valley conurbation (population 77,576) consists of Cheshunt, Broxbourne and Hoddesdon, forming a linear development along the western fringe of the valley. The majority of the built environment consists of housing. The River Lee Navigation was formerly a transport route into London. Market gardening and glasshouse culture were major industries in the past, but are now in decline and much of the land they once occupied is being re-developed for housing. The conurbation is 'sandwiched' between two areas of international significance for conservation – the Broxbourne Woods complex and the Lee Valley. Urban fringe habitats are therefore of high value.

Encapsulated countryside. Amongst the glasshouses along Hammondstreet Road in west Cheshunt there are significant areas of unimproved grassland, hedgerows and other relic features of countryside. It is important that these features are retained and conserved during any future developments, particularly where they are in close association with the Broxbourne Woods complex.
Key sites: Hammondstreet Road grasslands, Bonneygrove Wood, Silvermead.

Managed greenspace. On the western edge of Cheshunt there is a concentration of the nationally scarce Stag Beetle (see Chapter 22). Gardens are amongst the habitats it is known to utilise but the significant number of old town parks within the conurbation are also important. There may be as yet

unrecognised features of urban areas, possibly climate-related, which favour the survival of this species. Areas of glasshouses may have similarities in their ecology to allotments; some of the now scarce agricultural weeds may survive amongst the patchwork of cultivated and fallow areas.
Key sites: Cedars Park, Whithern Park, Barclay Park, Albury Walk, gardens, New River corridor.

Naturally regenerating habitats. Much of this section of the Lee Valley has areas of industrial and post-industrial habitat. Consisting largely of extensive gravel extraction sites, there are also sewage treatment works, horticultural sites and a power station with associated pulverised fuel ash (PFA) dumps. The remaining PFA areas are at Cheshunt gravel pits and Rye House Power Station. Post-industrial habitats are often rich in invertebrates. Thistly Marsh, an in-filled gravel pit next to the railway line at Cheshunt, is one of the best sites in the county for grasshoppers. Of particular note are the riverbank and canal towpath margins, which support an unusual flora, although this becomes more distinctive further down into London. These waterway corridors form a linear habitat connection with the River Thames and the London docks, and act as a channel for the spread into Hertfordshire of species introduced with imported goods and materials.
Key sites: Rye House Power Station, River Lee Country Park, Lee Valley.

Urban wetlands. Several amenity lakes, small reservoirs and, most significantly, the New River are to be found within the urban area. This important site is rich in aquatic life and supports a large population of the nationally scarce River Water-dropwort. At present the integrity of this river corridor is being threatened by continuing development.
Key sites: Cheshunt Reservoirs, New River.

This area contains an unusual abundance and diversity of significant sites. Development in the west of Cheshunt and along the New River corridor may well conflict with nature conservation if due care and attention is not paid. The parks and amenity areas are already of value and have great potential for enhancement.

10.3.1.6 Watford

Situated on an area of glacial river terrace gravels, Watford is the most truly urban area in Hertfordshire. It has a population of 109,503. There are extensive and valuable areas of all the typical forms of urban habitat.

Encapsulated countryside. Woodlands and wetlands are particularly well represented. The woodlands are predominantly classified under Beech stand-types with Cherry, Hornbeam, Ash and Oak being present. Whippendell Woods is a key component of a complex of highly important woodlands on the urban fringe. Cassiobury Park contains wet woodland of alder and willow, as well as areas of marsh and grassland.
Key sites: Whippendell Woods, Cassiobury Park, Harebreaks Wood, The Lairage Land.

Managed greenspace. Cassiobury Park is a large and important site which has areas of managed greenspace in association with encapsulated river corridor habitat. There is considerable scope for improved conservation management and habitat enhancement.
Key sites: Cassiobury Park, North Watford Cemetery.

Naturally regenerating habitats. There is a particularly good example of ‘urban common’ at Croxley Green Junction between a dismantled railway and the river Colne. This is a very species-rich and diverse site, different parts having undergone disturbance at different times. It displays the full range of successional stages between bare ground and secondary woodland. A fine example of naturally regenerating woodland links North Watford Cemetery to Stanborough Park. This site, based on the remains of ancient woodland at Gullet Wood, has an unusual character which it gains from its canopy species mix with dominant Wild Cherry, Birch and Oak, while also including Elm, Sycamore, Beech and Ash.
Key sites: Croxley Green Junction, woodland at North Watford Cemetery.

Urban wetland. The rivers Colne and Gade form significant wetland corridors with associated wetland habitats. The river Colne passes through Oxhey Park and then turns north through an industrial area to where it used to flow along the edge of Watford. Here it has now effectively become ‘encapsulated’ by a new M1 link road, built by Hertfordshire County Council. An

enhancement scheme for this stretch was carried out by the NRA. Meanders were re-created with the help of blockstone deflectors. The river's recovery has been quite dramatic, large numbers of fish have returned and both bankside and in-stream plantlife has recovered. Other stretches of the Colne are still suffering from similar problems to that caused by the M1 link road construction and it represents an under-utilised resource for both its biodiversity and amenity value. An enhancement scheme extended from that described above could include the development of public access along the length of the river's urban course.

Key sites: Rivers Colne and Gade.

A survey of public open space in Watford in 1987 showed an overall provision of 216 ha in the Borough, just short of 0.405 ha per 1000 population. These figures do not include school playing fields, ornamental parks and gardens, allotments or the Whippendell Woods on the west of the town. The open space is not distributed evenly with two wards being particularly deficient and one ward containing Cassiobury Park, which itself accounts for two-fifths of Watford's total open space. The unevenness of the distribution is one of the key issues in the town. Infill development since 1987 will have further reduced the provision.

One particularly damaging development has been that of housing built in Tunnel Woods. This valuable urban woodland had developed on the land beneath which railway tunnels passed through the chalk, as well as on the cuttings alongside the tunnel entrances. Mainly old secondary woodland but containing some plant species indicative of ancient woodlands, this woodland was ecologically very valuable given its context. A particularly large roost of Pipistrelle Bats used the wood as a feeding area, as did Badgers and Foxes, which have their setts and earths in the part of the woodland which extends onto the cuttings at the tunnel entrances. A thorough assessment of the remaining greenspace in Watford is urgently required in order to prevent further such losses.

10.3.2 Trends

Urban habitats are unique amongst wildlife habitats in that an increase in their distribution is not seen as desirable (at least if it is at the expense of open countryside). In 1970, the residential area in Hertfordshire was 11.1%, just over 18000 ha, and this increased to 11.7% in 1980. By 1990 residential development occupied over 19600 ha (12% of the county) with other urban uses amounting to over 5%. More detailed figures are available for Hertsmere Borough. They show a net land-use change to residential use between 1970 and 1990 of 112 ha, with half having been formerly what the planners term 'derelict or vacant land'. Between 1980 and 1990, 13 of the 42 hectares developed were in the Green Belt.

Development within urban areas (either on so-called 'brownfield' sites or 'in-filling' on managed greenspace) provides an alternative to development of the Green Belts, but may destroy a site that has a greater biodiversity than average farmland. A continuing turnover of urban sites becoming vacant, developing wildlife value, and then being re-developed can be seen as a 'natural' cycle of urban ecology. (Although occasionally certain sites develop outstanding value and may merit some form of protection.)

10.3.3 Threats

Distinct threats can be recognised through infill development (described above), incorrect management and 'improvement' through the use of top soil, planting schemes and pesticides. It is the infilling of areas which have never been developed; areas of encapsulated countryside or green space of long standing, which causes irreplaceable losses to the wildlife resource. The re-development of 'urban commons' (brownfield sites) of long standing can also lead to a significant loss of urban biodiversity. There are many threats to urban habitats and their biodiversity, but this is a complicated and imprecise subject area. Many plant and animal species have become adapted to urban conditions. The conditions which determine the unique urban communities which are so valuable to the study of ecology often include those which would normally be considered hostile to wildlife e.g. pollution or large scale tipping of industrial wastes.

10.4. The future for urban habitats in Hertfordshire

10.4.1 The value of urban habitats to people

Nature conservation in towns and cities is not just about the enhancement of biodiversity or how people can protect wildlife. It is also very much about how wildlife can enhance the lives of the people who live and work in these places. Benefits brought by wildlife can be found in looking at individual plants or animals, in an appreciation of patterns of movement, colour and smell. Wildlife makes a considerable difference to people's feelings of health and well-being. Natural areas are more peaceful and quiet. Wildlife sites are known to be valued as escapes from the noise and pressures of the harsh environments of concrete and tarmac.

Local distinctiveness. The ecological management of urban greenspace can emphasise ecological and cultural differences, and provide local character or distinctiveness. This may sometimes require changes in the expectations and aesthetic preferences of local people. However the public of today are receptive to new thinking about the environment and are sympathetic to the principles of biodiversity conservation. As a result such changes may be readily brought about with the correct approach to public information.

10.4.2 The future practice and approach of urban conservation

10.4.2.1 A strategic approach

Local Authorities are now committed to the production of sustainable policy frameworks under the Agenda 21 agreement. This is to be done through the Local Plan process and should be done with full consideration for nature conservation.

In order to conserve and enhance biodiversity in towns and cities considerable emphasis should be given to improving the quality of the urban environment in general; the water quality in rivers, the maintenance of their natural processes, air quality, restriction in the use of pesticides, appropriate management of trees and protection of wildlife from disturbance. If sustainable development means recognising the environmental limits to growth then it is essential that development plan strategies are environmentally led.

Each urban area should prepare a conservation strategy that sits within the wider district and county framework. The strategy will contain clear targets for the level and distribution of greenspace. The greenspace will be made up of components of encapsulated countryside, managed greenspace and self-sown habitats. Although the resource may not be static, especially with self-sown habitats, a minimum level for each should be set.

Local Authorities should show their recognition of the wildlife value of the non-traditional sites (self-sown habitats, 'urban commons', post-industrial sites etc) by recognising them in the Local Plan alongside traditional sites (woodlands and grasslands). Where re-development occurs, each site should be judged on its individual merits and the very best sites may well justify protection. The opportunity for 'designing' and managing appropriately (see below), new 'urban commons' to maintain a minimum level of habitat should be sought.

Planning and development strategies should integrate informed conservation principles. Where sites do come up for redevelopment then the possibilities of maintaining and enhancing biodiversity should be investigated and appropriate measures made a part of the planning agreement. This is particularly relevant to river corridors.

Local authorities should design networks of Green Transport Corridors which link greenspace within urban areas. These would be along dismantled railways, towpaths, and other linear features where

people could walk or cycle between urban nature reserves, parks and other greenspace, avoiding stresses of traffic and commerce. The management of all areas of greenspace should be reviewed to see if more sympathetic regimes can be implemented.

There is frequently much emphasis placed on wildlife corridors in urban conservation. This may lead to the assumption that land outside of such corridors will be of no value for wildlife. This is usually not the case. Except when they follow a river corridor or other natural feature, such as linear tracts of similar habitats such as woodlands or grasslands, wildlife corridors are a distraction from the need to improve the environment and enhance biodiversity *throughout* our towns and cities. The countryside to which these corridors are to link is often no more valuable to biodiversity conservation than the habitats within the urban areas. Immobile species will very rarely be provided with the conditions required for their spread to a suitable habitat by a green corridor.

Issues relating to the need and opportunities for environmental interpretation and education are of increased importance in urban areas, not only as objectives in themselves but as strategies for the maintenance and enhancement of biodiversity. Links between schools and the wildlife habitats in their areas generate a sense of ownership and care. Interpretation and education are usually the most appropriate measures of reducing the adverse effects that visitors may have on a site. High value should be placed on sites where studies on the environment can be carried out. School grounds have a key role to play.

10.4.2.2 Assessment of the resource – Total Natural Assets

In order for planning for wildlife in towns and cities to be fully effective, sound assessments need to be made of the wildlife resource. The recent Hertfordshire Habitat Survey identified all remaining areas of semi-natural habitat within the county. It also revised the criteria used for selecting sites of importance, known as ‘Wildlife Sites’.

Most urban areas in the county require surveys that specifically look for important areas of urban waste ground and managed greenspace. The value of such areas should be recognised in the local plan.

Traditional surveys have concentrated on habitats or botanical communities of a rural past, for example, amenity grassland with areas which are more species-rich. In fact, the surrounding gardens, street corners and odd patches of land will probably have a much greater value for biodiversity.

It is essential to carry out baseline surveys in order to determine the overall biodiversity resource of an area (in terms of habitats and species). This can be termed the ‘Total Natural Assets’ of a borough. These can then be assessed and the levels to which they are to be maintained can be set. This will include the hectarage covered by different habitat types (including garden habitats, ponds, watercourses and urban commons), by SSSIs, other statutory designations and by non-statutory sites. Lists of nationally and regionally rare species could also be held together with estimates of the diversity of species and numbers of individuals, for each local area. The total natural assets can then be reviewed at regular intervals with ‘profits’ and ‘losses’ assessed, and threats and opportunities identified.

In this way the old site based approach can be integrated into a more comprehensive and strategic approach to the conservation of urban biodiversity. The effects of proposed developments should be measured against these totals, and measures to maintain biodiversity levels incorporated into the development plans before they are implemented. The effects of developments on land outside of the actual development site should also be made. For example, the effects on flow and water quality in watercourses receiving discharges, or changes in air quality which may in turn affect the species growing on a wall or in a woodland. This approach would allow the integration of biodiversity conservation into environmental quality targets and the criteria for sustainable development.

Because of the difficulty in surveying gardens and other privately owned grounds, a method needs to be developed to assess the biodiversity of these areas. Surveys for specific species have been proposed in Chapters 18 (Song Thrush) and 22 (Stag Beetle). The distribution patterns of other species can also be clarified by this sort of survey, which relies on tapping into the knowledge of the general public; for example the occurrence of bat roosts in urban buildings.

10.4.3 Management of habitats in the urban environment

The conservation of urban biodiversity requires a different approach to that traditionally undertaken in the wider countryside. Even in areas of encapsulated countryside it has been established that there are different ecological, as well as cultural factors at work.

10.4.3.1 Urban woodland management

Management of woodland in an urban context has to take account of local ecological and cultural conditions. Coppicing, for example, is likely to be inappropriate in a small, deeply urbanised wood where there is high visitor pressure. The level of disturbance, nutrient inputs and exotic seed-rain would mean that any conservation objectives would almost certainly be damaged by coppicing.

The case of Sycamore serves as an example of the need for a different approach to woodland management in urban environments. Sycamore is a characteristic tree of urban woodlands, sometimes introduced by planting. It behaves very much as a typical urban species. In the past it has received considerable attention from conservationists, frequently seen as a harmful alien which must be eradicated in order to protect the ecological integrity of the woodland. However, harm may only occur where it invades long-standing habitats such as ancient woodland or species-rich grassland.

Sycamore is a pioneer species of somewhat weedy character springing up in odd corners and areas of disturbance. Few of the numerous seedlings become saplings and fewer of the saplings turn into mature trees. Disturbance such as that caused by the 'conservation action' of 'Sycamore bashing' only serves to maintain the early successional stages during which it is naturally dominant. However, the species is now so well established that nothing can stop it taking its place as an honorary native in fertile urban woodland. A native of southern Europe, the Sycamore occurs naturally with Ash on fertile soils especially in river valleys. Similar communities are developing in urban woodlands.

In order to balance the different interests in the management of urban woodland it may be appropriate to assess the overall woodland resource of an urban area and then assign different roles and therefore management to different areas. In this way recreational needs can be balanced with those of conservation, either within each area of woodland or throughout the woodland resource as a whole. Certain areas may require a management which attempts to ensure non-disturbance, others may be designated for the focus for certain forms of recreation, interpretation or education.

Where possible woodlands should be buffered by creating an area of greenspace around them. This can provide an alternative focus for some of the more damaging forms of recreation. These areas will protect the woodlands from tipping, garden encroachment, and assertive woodland management from neighbouring properties. If a development near to a woodland cannot be avoided then buffering should be designed as part of the development. Some form of fencing should be included to protect strips adjacent to the woodland, to allow a graded woodland edge of self-regenerating scrub and young trees.

New areas of woodland should be created through natural regeneration where suitable seed sources are present. The advantage over planting is that the species which occur will reflect the local ecological conditions. The communities which arise will be the natural products of association and competition between species, and will exhibit local distinctiveness. With planting, this naturalness cannot be replicated and the earlier stages of succession, with mosaics of associated habitats, such as bare ground or damp hollows, are lost. The cost of the trees, planting and maintenance is high and such management can be detrimental to other species through the use of herbicides or the cutting of vegetation.

Veteran trees. There is a tendency to condemn old trees growing in public areas on safety grounds. Local authorities and landowners allowing public access are caught in an awkward position between their obligations under law and a desire to allow nature to take its course, allowing the greatest biodiversity to develop.

The Forestry Commission leaflet, *The Recognition of Hazardous Trees*, takes a responsible approach by informing of a landowners liability for any damage

caused by a tree breaking or falling where it shows external evidence of decay or structural weakness. However, problems arise in that the nature of the guidance in recognising hazardous trees is such that almost every tree within an urban area could be said to show external evidence of decay or structural weakness.

The frequency of instances where trees cause injury to people by shedding branches or collapsing is very low, but the perceived risk is exaggerated because the wording of the law is unspecific. Consequently, insurance companies will insist on a very strict interpretation of the law by local authorities and others in order to minimise their own risks. The Forestry Commission leaflet therefore will encourage the pruning, felling and general 'sanitisation' of a great majority of trees in areas where people or property may conceivably be at risk.

A fresh view on the value of veteran trees is required. Such trees should be allowed to stand and not felled at the first sign of ‘old age’. Where genuine risk is felt to exist, one solution may be to fence off rather than fell or severely lop the ‘offending’ tree. Fencing, and management within the fenced area can be designed to give an aesthetically appealing appearance and to enhance biodiversity. Fallen boughs should be left amongst long grass, where reduced trampling and mowing favours fungi and invertebrates. Where older trees have to be felled or are windblown, opportunities should be sought to retain dead wood, such as trunk sections. These may be best left lying on the ground in shady areas. Stumps should not be ground out or chemically treated as they provide a valuable resource for insects such as the Stag Beetle.

The creation of new pollards could provide a way in which management for amenity and public safety could fit in with the development of veteran trees and associated habitats in the longer term.

10.4.3.2 Urban grassland management

The best forms of management for grasslands are likely to be the traditional practices under which they evolved. More often than not this will involve grazing. Although this is often seen as conflicting with the use of the area by the public there are many examples where people happily accept grazing animals as it brings extra interest to the site. Where grazing cannot be used in a management regime, then mowing treatments, although second best, can be designed to conserve the biodiversity of a grassland. Such treatments are likely to involve some form of rotation, with areas left uncut each year, or cut at different times of the year.

In many managed greenspaces, the key issue is the intensity of mowing. In cities such as Sheffield, the council has implemented changes to the existing management regimes to make them more sympathetic to wildlife. This usually involves changing from regularly short mown turf to maybe one or two cuts per year. Grasslands have come up with masses of wildflowers, including orchids, and these are attracting butterflies and birds. Long term monitoring of these sites is demonstrating the benefits to wildlife, to local landscapes and is saving money on grass cutting. There is great scope for such management to be adopted in Hertfordshire in the extensive areas of grassland in the new towns and garden cities, as well as the verges of new link and ring roads. Where possible, areas of longer grass should buffer or link existing sites of value such as woodlands or older grasslands.

However, a common problem is that the public complain that areas of grassland managed in this way have an untidy and neglected appearance. Part of the problem is one of aesthetics and fashion determining people’s perceptions. In the long term the advantages of different, more ecologically sympathetic, regimes become apparent. However, immediate practical solutions include maintaining close mown margins along edges, paths and even significant sight lines. Interpretation and communication is essential.

10.4.3.3 Self-sown habitats

In the naturally regenerating habitats occurring on urban ‘waste ground’, the conservation thinking of the countryside is even less appropriate. Such areas should be seen by conservationists as a delight, a release from the worry of protecting species and habitats. This is where the thrill of watching nature evolve can be enjoyed with all its surprises and irreverent abandon. New plant associations can, and should, be allowed to develop.

The Pulverised Fly Ash (PFA) tips of the Lee Valley, now covered in orchids are a delight. Where it is easily achieved there is great value in managing such areas for the enjoyment of the public, as shown at the River Lea Country Park, Cheshunt. However, this is a special case, and in general it should be recognised that many self-sown habitats will be temporary in nature and it would be a mistake for conservationists to put too much emphasis on areas of urban industrial dereliction which have become important for wildlife and call for all such areas to be protected from development. Each site should be judged on its merits. The aim should be to manage and appreciate such sites for their biodiversity during their period of availability and seek to maintain a rotational resource as sites become developed.

To take an approach which is overly reliant on site-based conservation is a mistake in an urban context. Where established semi-natural habitats are scarce, and there is a constant pressure on those that do exist, it is understandable to want to conserve them. However, nature has already taught us that there is already a great deal of wildlife which has adapted to the urban environment and a mix of traditional and new sites will be of most value.

What will increase the opportunities for orchids, and other less common species within towns and cities, is to resist the urge to enrich, plant and sow the soils in every development site. Top-soiling and ornamental shrubberies should be avoided! Instead nature should be left to take its course. New spontaneous communities of plants and animals should be allowed to develop as and when opportunities occur.

The appearance of some of these naturally regenerating sites, particularly ‘urban commons’, are sometimes perceived as being unpleasant. The profusion of plants, colourful flowers and insects is overlooked by many people. Their attention is focused on the broken and neglected industrial structures they associate with decay. A number of different treatments which attempt to retain the best features of these areas, whilst giving them an appearance of being cared for, have been assessed (Gilbert 1989). With ‘urban commons’ the creation of a sown and mown grassland strip around the perimeter of the site has proved to be the most satisfactory treatment. This may be combined with the use of rows of posts to prevent vehicle access.

The need to arrest successional change on naturally regenerating sites should be questioned. Although many characteristic plants and animals are naturally adapted to cope with disturbance this is already frequent enough in the urban environment. Allowing areas to remain undisturbed for longer periods in these new environments could yield further interesting discoveries.

The opportunities that disused railway lines present for public access to wildlife are great. This has been recognised by many local authorities who have converted them to footpaths and cycleways, allowing pleasant car-free links to the centres of towns. The restoration of these old railway lines to form new 'green routes' has not always been done in a way which ensures an optimal outcome for wildlife and people. The opening of a central path for example could give rise to increased habitat diversity and conditions which resemble those of a woodland ride. However if the path is surfaced with an impermeable material and it is so wide as to occupy the entire level surface then biodiversity opportunities will be lost. Solutions may lie in adopting maintenance techniques which are adapted from the original methods used by the railway maintenance gangs. The aim would be to maintain the open conditions of the past and therefore conserve something of the unique plant communities they supported.

10.4.3.4 Urban wetlands for stormwater control and nature conservation

Increasingly, storm water drains are being designed so that they no longer discharge directly into streams and rivers. Instead they flow into specially constructed basins known as balancing tanks, lakes or ponds. They are a feature particularly associated with New Towns. In appropriate circumstances these ponds can be enhanced to maximise their value for wildlife, providing that the constraints imposed by pollution are taken into account

There is considerable scope for creativity and invention to be applied to the design of these balancing ponds, and other urban wetlands, to enhance the environment. It may be possible to

Case study – River Hiz Development Guidelines (Hitchin)

The River Hiz Development Guidelines, produced by North Herts District Council, are the culmination of work instigated by the Hitchin Rivers Society, who prepared a draft of the document.

The society recognised that many of the problems in relation to the rivers flowing through Hitchin could only be solved by co-ordinated long term planning. The River Hiz in particular is severely degraded in stretches, is culverted in part and lacks natural features. With the adoption of the development guidelines by North Hertfordshire District Council future re-development along the river Hiz corridor will need to ensure that the opportunities for environmental improvements are not lost, and that the continuity of the open watercourse and public access is enhanced.

The development of an integrated publicly accessible corridor along the river is seen as 'key to both maintaining and enhancing the attractiveness of Hitchin town centre for shopping, business, recreational and residential purposes'. However, it is unfortunate that the original strong emphasis of the draft plan on the wildlife conservation aspects has been weakened. Despite that, there is a section on wildlife, and the document makes important points about the desirability of correcting the mistakes of the past and of protecting existing species. However, where nature conservation measures are concerned the wording is that 'the Council *will encourage*' the various measures, but with respect to aspects such as the provision of a walkway the wording is 'the Council *will normally expect'*.

The development of a traffic free riverside walk providing access into the town centre is very important and has been developed with success in other parts of the country (The Five Weirs Walk along the River Don in Sheffield, for example). However the protection and enhancement of biodiversity should not be placed second to the considerations of public access and townscape aesthetics.

include reedbeds in association with balancing tanks, sewage works outflows, or even along watercourses themselves. These will provide valuable habitat, visual amenity and a sustainable method of water quality improvement. The National Rivers Authority (now The Environment Agency) set up a project in 1995 to test the idea of placing reedbeds at strategic points in streams to intercept and treat surface water run-off. Two small rivers, the Ingrebourne and the Wantz Stream, both receiving substantial amounts of surface run-off, were chosen for the test. A full programme of pre and post-scheme surveys have been designed to monitor improvements in water quality and the effects on wildlife.

10.4.3.5 River enhancement

In the past, rivers in an urban setting, especially in industrial areas, have commonly been treated purely as channels for carrying away water. River engineers have considered it essential to build into rivers the ability to cope with dramatic increases in flow in order to prevent flooding. This has often been at the expense of the associated wildlife habitats such as aquatic vegetation, bankside trees, pools and islands, all of which impede the smooth and efficient flow of water in the river. Frequently this means that rivers are made to flow in wide, straight, deepened channels with steep sides made of concrete. In extreme cases the river is completely enclosed so that it flows through an underground tunnel, sometimes for considerable distances. Also in many instances buildings are constructed directly onto the waters edge, preventing access to the river and restricting the possibility of bankside habitats being created for many years into the future.

The sudden change from permanently wet channel to dry banks in urban canalised watercourses means a loss of marginal vegetation and associated damp habitats. Deepening and widening leads to low flow levels, deposition of urban sediments within the channel and loss of habitats. Channel destabilisation is

caused downstream and upstream of the altered watercourse.

Opportunities for river restoration and rehabilitation must be seen as a priority both in terms of engineering and wildlife benefits. They not only offer the opportunity to reduce past damage but may also reduce costly levels of maintenance. Local Plan policies should stipulate that where riverside re-development takes place, a certain level of environmental enhancement will be expected.

River enhancement has to be designed according to the particular site conditions. Ideally the establishment of a two or multi-staged channel to accommodate increased discharges at peak flow whilst maintaining a low flow sequence of pools and shallows to enhance habitat. Wherever possible the river should be allowed to flood freely into associated floodplain habitats. Where steep banks cannot be avoided, the use of natural bank protection should be made e.g. woven willow or geotextiles instead of sheet pilling. Overall the aim must be to restore the continuity of aquatic bankside habitat.

10.4.3.6 Ponds

There is room for expansion of the ecological approach to wildlife gardening, and in particular the creation and management of ponds. Space may be a limitation in many private gardens but there is an increasing interest in the creation of ponds and wildlife areas in the grounds of schools, hospitals and community centres where the possibilities are much greater

Surveys of ponds in urban areas, including those in gardens, will provide an inventory and allow their mapping. Where ponds of particular value are found, the creation of other ponds nearby to provide extended habitat would be beneficial. Where a shortage of ponds is revealed this can also be addressed by the creation of new ponds.

The maintenance and creation of different types of ponds should be planned for. This will allow some ponds to follow the full course of succession, while others may remain largely unchanged for long periods. As well as the ‘standard’ pond, seasonal pools which lose their water in the height of summer, or ponds heavily shaded beneath trees will bring additional wildlife benefits.

As with woodlands, buffering can be important. In this case, the major concern will be the protection of water quality. All new developments should be designed so that they protect water quality, the surrounding habitat and do not interfere with water supply.

10.5 A vision for urban habitats

In 50 years time the idea of urban wildlife in its widest sense will be taken for granted. It will be expected that the needs of wildlife will be included in the planning and design of towns and cities, not as a desirable bonus but as an essential pre-requisite. Each urban area will have its own nature conservation strategy which will include an account of the total natural assets within the borough together with targets for their maintenance or expansion. Planning decisions will take full account of the effects of any development on biodiversity conservation and the wider environment, such that any development will not have an overall negative effect on the total natural assets of the town or city.

The Agenda 21 process will have borne fruit, such that decades of sustainable development will have brought environmental improvements to towns and cities. Buildings will feature innovations such as solar heating, turf roofs or roof gardens. Traffic calming schemes will have improved the green environment in streets. Water and effluent treatment will use green technology, such as reedbeds, which will benefit wildlife. All open spaces, encapsulated countryside and managed greenspace will be monitored and managed under the nature conservation strategy of each urban area.

Every urban resident will be able to enter a greenspace with wildlife value within 280 metres of their home.

Every urban area will have Local Nature Reserves at a minimum level of one hectare per 1000 population.

Every school will have its own wildlife area or access to a place within ten minutes walk where field studies on the environment can be carried out. Urban wildlife habitats will be used extensively for study, teaching, interpretation and recreation, both formal and informal. People will have grown up with a knowledge and attachment for local wildlife habitats since being introduced to them at school and through local authority services.

Environmental information, performance indicators and species information will be freely available to individuals, schools, newspapers and other media. This will allow people to find out and communicate what is going on in their local and the wider environment. They will be able to respond to threats and changes to the habitats and the environment surrounding them.

Urban rivers will have continuity of open water and marginal vegetation throughout their course. Water quality will be protected by the appropriate control of urban run-off and discharges. Urban stormwater run-off will be reduced by the use of permeable paving and road surfaces and the extended use of green technology in building construction. All urban areas will have extensive networks of green transport corridors which will encompass rivers, canals and abandoned railways and even disused roads.

10.6 Ten year targets

Each urban area of population over 5000 to have achieved the three English Nature targets:

1. To see that every urban resident can enter a greenspace with wildlife value within 280 m of their home.

2. To see that every urban area has Local Nature Reserves at a minimum level of one hectare per 1000 population.

3. To see that every school has its own wildlife area or access to a place within ten minutes walk where field studies on the environment can be carried out.

10.7 Urban Action Plan (Draft)

Objectives, actions and targets

Objective 1: To protect urban habitats and protected species within the urban areas of Hertfordshire

Target: 50% of urban Wildlife Sites, in public ownership to have management plans in place by 2008

Action code	Action	Target start date	Target end date	Lead partner	Other partners
UR/A/1.1	Ensure policies to protect and enhance urban biodiversity are incorporated into Local Development Frameworks (LDFs) and Local Plans	2005	Annual Report	HBRC	HMWT, Urban working group, LA's
UR/A/1.2	Ensure urban biodiversity is addressed in Community Strategies and through the Local Strategic Partnerships role	2005	Annual Report	BAP Officer	HMWT, HBRC, LA's
UR/A/1.3	Ensure that urban biodiversity objectives are addressed in District LBAPs	2005	2007	BAP Officer	HMWT, HBRC, LA's
UR/A/1.4	Review the urban Wildlife Sites criteria	2006	2006	WSO	WSP
UR/A/1.5	Identify and map the boundaries of all settlements with populations over 5000	2006	2007	HBRC	
UR/A/1.6	Identify the total number of urban wildlife sites in settlements with populations over 5000	2006	2007	WSO	WSP
UR/A/1.7	For each of the urban areas mapped, identify the wildlife sites, ecological sites and protected species	2007	2008	WSO	WSP
UR/A/1.8	All urban Wildlife Sites to be notified	2006	Annually	WSO	WSP
UR/A/1.9	Ensure 50% of urban Wildlife Sites in public ownership have management plans/statements in place	2006	2008	WSO	CMS, HMWT, HBRC, LA's
UR/A/1.10	Through the Wildlife Sites Project, monitor and report annually on the loss of urban wildlife sites	2005	Annual Report	WSO	WSP
UR/A/1.11	Identify five suitable urban wildlife areas for LNR designation.	2006	2007	HMWT	EN, LA's
UR/A/1.12	Designate one LNR every two years	2007	Annual Report	HMWT	EN, LA's

Objective 2: To increase the biodiversity of existing urban greenspaces and promote opportunities for biodiversity gain in all appropriate developments

Target: 50% of all urban greenspaces to have ecological management plans by 2011

Action code	Action	Target start date	Target end date	Lead partner	Other partners
UR/A/2.1	Carry out Phase 1 and Phase 2 surveys for all urban areas in Hertfordshire that have not already been done to determine all sites of wildlife importance	2005	2010	HBRC	HMWT, LA's
UR/A/2.2	Identify an officer in each Local Authority to be a key point of contact for urban greenspaces	Mar 2005	End 2005	BAP Officer	HMWT, LA's
UR/A/2.3	Identify the current extent of greenspaces within all urban areas of Hertfordshire	2005	2007	LA's Forward Planning Team	Urban working group
UR/A/2.4	Identify areas of greenspace deficiency to feed into LDF process	2005	2007	LA's Forward Planning Team	Urban working group
UR/A/2.5	Ensure urban biodiversity is incorporated into the *Herts Sustainability Design Guide*	2005	End 2005	Urban working group	HCC Forward Planning Team
UR/A/2.6	Disseminate *Biodiversity by design – a guide for sustainable communities* to all planning departments and promote to developers	2006	2007	BAP Officer	
UR/A/2.7	Through the planning process, seek to integrate biodiversity or 'green gain' (eg green roofs, green walls, nesting and roosting boxes, ecologically appropriate landscaping) into all new developments in Hertfordshire	2006	Ongoing Annual Report		
UR/A/2.8	Identify key indicator species of urban areas (e.g. Swifts, House Martins, House Sparrows, bats)	2006	2006	Urban working group	
UR/A/2.9	Initiate a programme of monitoring of the key urban indicator species	2006	2008, 2010 Two-yearly reports	WSO	RSPB, HNHS
UR/A/2.10	Seek biodiversification of urban parkland by running bi-annual training events in urban ecology for parks and grounds maintenance managers	2007	2009, 2011	HMWT	CMS, Gwk
UR/A/2.11	Secure the preparation of management plans with ecological objectives and their implementation for 50% of urban greenspaces	2006	2011 Annual Report	CMS	HMWT, Gwk

Objective 3: Raise awareness of urban biodiversity and promote opportunities for involvement in urban conservation

Target: Hold five public events annually highlighting the importance of urban areas for biodiversity

Action code	Action	Target start date	Target end date	Lead partner	Other partners
UR/A/3.1	Provide advice on the incorporation of biodiversity into the management of urban greenspace, including school grounds	2005	2007	BAP Officer	LA's, Gwk, CMS, HMWT, HBRC
UR/A/3.2	Encourage local authorities and schools to recognise their role in raising awareness of urban biodiversity issues	2005	2007	BAP Officer	LA's, Gwk, HMWT, HBRC
UR/A/3.3	Ensure the installation of signage and interpretation at LNRs	2005	2007	BAP Officer	LA's, Gwk, CMS, HMWT
UR/A/3.4	Hold 5 public events, supported by articles and newsletters, to highlight the importance of urban areas for biodiversity	2006	Ongoing Annual Report	HMWT	All partners
UR/A/3.5	Provide opportunities for people (adults and children) to learn about biodiversity through involvement in practical conservation work	2005	Ongoing Annual Report	HMWT	CMS, RSPB, LA's, Gwk
UR/A/3.6	Produce a directory of Friends of groups within each urban area	2007	2007	CMS	
UR/A/3.7	Promote Friends of groups in those urban areas where they are not currently available	2007	Ongoing Annual Report	CMS	
UR/A/3.8	Highlight available literature on the creation and maintenance of school grounds for wildlife on the Herts LBAP web site	2005	2007	Gwk	HBRC, HMWT
UR/A/3.9	Promote wildlife gardening via websites and public events	2006	Ongoing Annual Report		HMWT, RSPB
UR/A/3.10	Publicise the HMWT wildlife garden at St Allbans as a best practice demonstration site	2006	Ongoing Annual Report	HMWT	

Relevant Action Plans:

Hertfordshire Plans
Grassland and Heathland; Great Crested Newt; Song Thrush

National Plans
Urban Habitat Statement

Abbreviations (Partners)

CMS – Countryside Management Service
EN – English Nature
Gwk – Groundwork Hertfordshire
HBRC – Hertfordshire Biological Records Centre
HCC – Hertfordshire County Council
HMWT – Herts & Middlesex Wildlife Trust
HNHS – Hertfordshire Natural History Society
LA's – Local Authorities
RSPB – Royal Society for the Protection of Birds
WSO – Wildlife Sites Officer
WSP – Wildlife Sites Partnership (HMWT, HBRC, CMS, FWAG, EA, EN, DEFRA, Chilterns AONB)

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