

A Greenprint for Biodiversity in Chesterfield (2nd Edition)

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1.0 Introduction

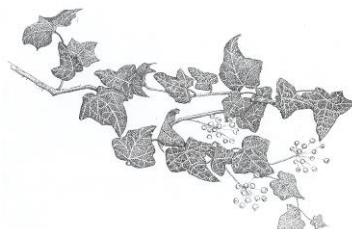
1.1 What is biodiversity and why is it important?

Biodiversity is the amazing variety of wildlife including all the plants and animals that exist throughout the world. It is not just about rare or threatened species, but encompasses every one, from the commonplace to the critically endangered. Biodiversity is important aesthetically and spiritually, culturally and commercially. Conserving our wildlife is a key test of sustainability - a healthy and diverse environment is essential to future generations.

A rich wildlife heritage greatly contributes to the quality of life of the Borough's inhabitants, with a healthy environment being fundamental to the wellbeing of the population. Wildlife enriches our daily lives; butterflies in our gardens, or the sound of birds from our offices provide us with a link with nature. A good network of green spaces can encourage people to take exercise, and contact with nature has been shown to contribute to mental wellbeing. Attractive, wildlife-rich areas can bring economic benefits through tourism, investment and employment opportunities. Wildlife habitats also have wider economic implications for example wetlands can provide wastewater treatment and flood defence.

Derbyshire's biodiversity is an essential part of its character. From the moorlands of the Dark Peak to the wetlands of the Trent Valley, a unique range of habitats characterises the County. These support a great diversity of species, ranging from the common to the globally rare. However human activities are changing and destroying the natural environment on an increasing scale. The recent State of Nature 2016 report concluded that over the last 50 years, over half of species have declined and 15% are at risk of extinction. Key wildlife habitats such as wild flower meadows, hedgerows, swamps, fens and ponds and in some cases woodlands too have been lost through a combination of factors including intensive agriculture, commercial forestry, development and neglect. Many of the plants and animals which depended on these habitats have also disappeared, and many are known to be rare, declining or under threat on either a national or local level. For example, 258 of Derbyshire's native plants are now on the Derbyshire Red Data List, 36 Derbyshire birds are on the RSPB Red list and around 70 species of larger moths found in Derbyshire are now priority species due to national decline.

Urgent action is needed to reverse these declines.



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1.2 What is a Greenprint?

This Greenprint identifies and assesses important habitats and species found within Chesterfield Borough (Figure 1) and sets out actions that need to be taken forward to try and protect, enhance, restore or re-connect these habitats or species and their populations. This version is a revision and update to the earlier Greenprint that covers the period 2010 – 2020. It is envisaged that Greenprint will pick up from the previous one and extend the life of the Greenprint until 2029.

The Greenprint is informed by the objectives for Biodiversity as set out in the Biodiversity 2020 strategy, the National Planning Policy Framework and the Lowland Derbyshire Biodiversity Action Plan 2010 – 2020. In terms of broad principles the Greenprint has adopted those identified by Professor John Lawton in his 2010 report Making Space for Nature.

The Greenprint aims to:-

- Identify the core elements of the ecological network
- identify priorities for protecting, managing, restoring, extending and re-connecting habitats and species populations within an ecological network across the Borough;
- Reduce the pressures on wildlife by improving the wider environment, including through buffering Local Wildlife Sites
- identify targets for action to achieve this;
- raise public awareness of biodiversity and encourage action;

1.3 Wildlife in the Borough of Chesterfield

Chesterfield Borough includes both extensive areas of urban land-use and relatively undeveloped areas especially in the north and east. Within this urban – rural character there are some diverse habitats present including woodlands, wetlands and flower rich grasslands, stream and river corridors and a large part of the Chesterfield Canal. The landscape has in places been significantly modified by a long history of mining and other heavy industry and as these industries ceased operating large areas of land have been left awaiting restoration and regeneration. In some cases this has given rise to new Country Parks such as Poolsbrook and Holme Valley, whilst other areas have naturally revegetated providing valuable new homes for wildlife. There is also an extensive network of green spaces throughout the Borough that include smaller woods, plantations, amenity grasslands, road verges and public open spaces.

The habitats present within the Borough are home to a rich diversity of animals, plants and fungi. Some species occur throughout the Borough e.g. blackbirds, whilst others are very restricted in their distribution e.g. the water vole. Some species are restricted by the need for specific food-

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plants or nesting opportunities and the degree to which species have adapted to an urban environment varies. Arguably some species of bats and swifts have adapted successfully by nesting in or on buildings and many birds and insects make use of urban gardens to find food and shelter.

Several habitats and a number of species present within the Borough of Chesterfield are listed as priorities in Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. These habitats and species are also identified within the Lowland Derbyshire Biodiversity Action Plan 2010 – 2020. The habitats are listed in Table 1.

Priority habitat type	Estimated extent (ha) or number in Borough
Broad-leaved woodland	360 ha
Hedgerows	33km
Veteran trees	39 recorded
Lowland meadow	40 – 50 ha
Lowland dry acid grassland	2.5 ha
Lowland fen	2 - 4 ha
Reedbed	6 - 9 ha
Rivers, streams and canals	Rother and tributaries, Chesterfield Canal
Ponds	150 – 300
Open mosaic habitats on previously developed land	130 – 160 ha
Traditional Orchards	3 ha

Table 1: Priority habitat types and their estimated extent in Chesterfield

The priority species are listed in Appendix 2. It is envisaged that some of these species can be protected and their populations enhanced through the protection and management of priority habitats, whilst others require more specific targeted actions. Some of these species are also valuable because they are popular with local people or particularly characteristic of the Chesterfield area.

On this basis several species (or groups of species) have been selected as ‘flagships’ for the Borough of Chesterfield – examples of priority species which will be used to encourage local action.

1.4 Designated Sites

Some sites in Derbyshire are considered to be of national importance for their biodiversity and have a statutory designation. These include Sites of Special Scientific Interest (SSSI). There are no nationally designated sites in Chesterfield at the moment.

Local Nature Reserves (LNRs) are designated by local authorities in

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partnership with Natural England. They are sites which are important to the local community, and which they are involved in managing. There are three LNRs in Chesterfield, Norbriggs Flash, Bluebank Pools and Brearley Park Meadows.

Outside SSSIs, the best sites for biodiversity in Derbyshire are designated as Local Wildlife Sites (LWS). The designation is non-statutory and sites are selected by an independent panel on behalf of the Derbyshire LWS Partnership which includes Chesterfield Borough Council. Derbyshire Wildlife Trust maintains the LWS system on behalf of the Council and organises a programme of surveys of sites and provides information and advice to landowners and managers under a Service Level Agreement with Chesterfield Borough Council. LWS are afforded a level of protection within Local Plans and the National Planning Policy Framework.

There are currently 29 LWS in Chesterfield extending over 260 ha (3.95%) of the Borough. This is quite a low LWS land cover compared to other Local Authorities in Derbyshire. 10 LWS are owned by Chesterfield Borough Council, 2 (and part of a third) by Derbyshire County Council, and the rest are in private ownership.

Most habitats need active management to maintain their value for wildlife. An assessment of Local Wildlife Sites undertaken by DWT in 2018 revealed that 18 sites (62%) in Chesterfield had received positive management in the past five years. This indicator has improved over the last few years largely due to the efforts of Chesterfield Borough Council and Derbyshire County Council. However, there are still at least 10 Local Wildlife Sites considered to be in a poor condition and 6 of these are in decline.

In addition to the designated LWS there are 33 sites covering over 300 ha identified as potential Local Wildlife Sites. These sites are awaiting formal assessment, but some of them are known to be threatened by development. The implementation of positive management on these sites is generally low, but some are thought likely to be in some kind of management.

These figures demonstrate the need to bring more designated and potential LWS into positive management in order to safeguard their wildlife for the future.

1.5 Green infrastructure and the Ecological Network

Wildlife is vulnerable to decline when it is isolated within small fragmented sites and when the habitat conditions that each species needs start to disappear or become degraded. Plants and animals need to be able to move and spread in order to maintain viable populations and respond to changes in their environment. This is particularly important at a time when our climate is changing and species need to move as their current habitats become unsuitable. For this reason it is essential that we develop linked networks of habitats which are positively managed for wildlife. As the Making Space for Nature (2010) report concluded England's network of sites needs to be 'bigger, better and more joined up' if we are to stand a chance of tackling biodiversity loss.

Networks of accessible natural greenspace are also essential for the quality of life and survival of the human population. Greenspace and trees in towns and cities help regulate air quality and temperature and reduce flood risk. Regular access to nature has been shown to improve both mental and physical health. Attractive natural greenspace also has considerable economic value by increasing house prices, supporting tourism and attracting inward investment.

For this reason, the concept of 'Green Infrastructure' has become central to Government planning policy. It is defined in the NPPF (2018) as "*A network of multi-functional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities.*".

Chesterfield's Green Infrastructure Study was published in 2009 as part of the evidence base for the Local Plan. It maps the network across the Borough, including elements such as river and canal corridors, Local Wildlife Sites, public and private open spaces and greenways as well as open countryside. Great emphasis is placed on the need to maintain and enhance biodiversity (and hence deliver the objectives of the Greenprint) through green infrastructure delivery.

Opportunities for increasing green infrastructure exist through major new developments such as large housing proposals and the restoration of the Chesterfield Canal. The Local Plan includes specific policies for the protection and enhancement of Green Infrastructure.

Green infrastructure goes hand in hand with the Borough's ecological network. The Government's White Paper, *The Natural Choice: securing the value of nature* (June 2011) built on the work of an independent review of England's wildlife sites and ecological network (*Making Space for Nature: A review of England's Wildlife Sites and Ecological Network* 2010), and identified that England's collection of wildlife areas is fragmented and does not represent a coherent and resilient ecological network capable of responding to the challenges of climate change and

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other pressures. It also recognised that there is a need to better account for the value of natural capital when making decisions to ensure that the full costs and benefits are not left off the balance sheet.

The White Paper and also the Lawton Review set out the five key components of ecological networks across the country, to be implemented at a landscape scale working with existing land uses and economic activities. The key components of the ecological network are: -

- **core areas** of high nature conservation value (e.g. Sites of Special Scientific Interest, Local Wildlife Sites, priority habitats);
- **stepping stone sites and corridors** which connect core areas, allow movement of species and support ecosystem functions;
- **restoration areas** where new high value areas will be created to restore ecological functions and wildlife;
- **buffer zones** are areas around the preceding three components to protect them from adverse impacts;
- **Sustainable used areas** where natural resources are used sustainably with appropriate economic activity to ensure the wider environment is less hostile to wildlife.

The Greenprint builds on existing evidence, and using available resources in partnership with the Derbyshire Wildlife Trust, has identified the first three core components of the currently known ecological network as shown on the map in appendix A. The Council aims to identify buffer zones and sustainable use areas should sufficient resources become available for this and in any case to continuously review its understanding of the network to take account of new evidence as an iterative process.

One key question regarding the ecological network is how much land should be identified for nature conservation purposes be that in terms of existing or future value and how do you determine when a piece of land is making a significant contribution to maintaining biodiversity or has the potential to do so by facilitating a more coherent ecological network? If only land that is known to be of Local Wildlife Site quality is included the current extent is low around 4%. Another 5% has been identified as potentially supporting habitats of substantive interest. However, some of this is also allocated for development or other purposes and whilst development presents opportunities care is needed when designing schemes to ensure no net loss and enhancement of biodiversity and the coherence of the ecological network results. One opportunity for enhancing biodiversity lies with areas identified as public open green space as these are likely to already have habitats of value, and given their public ownership have the potential to be enhanced including new habitat creation. Opportunities may also exist with public open space for its use as a receptor for 'off-setting' new development elsewhere as part of a system of compensation.

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The Council is working on a public open space assessment and strategy which will seek to provide adequate levels of publically accessible natural and semi-natural open space, acknowledging the recognised benefits to health and well-being from such provision and also the opportunities afforded for enhancing the ecological network through publically owned and managed land.

Ultimately the extent of the network needs to be capable of supporting the current suite of species found in the area and ecosystem services. A target of achieving 15% of land within the ecological network comprising 8% of land with high wildlife value and 7% of lower wildlife quality by 2029 seems possible, although still very challenging.

It is essential that the delivery of the Greenprint, a new Parks and Open Spaces Strategy and Local Plan Green Infrastructure and Biodiversity policies are coordinated and integrated. This will ensure that the development of green infrastructure in the Borough contributes as fully as possible to enhancing biodiversity, and that the Borough's residents, services and businesses benefit from a healthy natural environment.



2.0 Objectives and priorities for Chesterfield's habitats

2.1 Establishing and maintaining a functional Ecological Network

One of the key objectives for nature conservation in the Borough is to establish an ecological network that is coherent, being well managed, buffered from adverse impacts and connected via corridors and stepping stone sites. The ecological network should seek to build on the extent of existing designated and priority habitat through a programme of restoration, enhancement and creation wherever opportunities and resources allow. The ecological network should seek to provide habitats and dispersal routes for a wide range of species including native wild plants and animals such as butterflies, bees, amphibians, reptiles, birds and mammals.

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The ecological network can be determined by the presence of existing habitats and river / stream corridors and the key broad areas where actions would be beneficial are highlighted below and in appendix B. These areas are described in more detail below.

Key Habitat Corridors within Chesterfield Ecological Network

Area A – Holme Brook Corridor

This part of the network is focused on the Holme Brook which flows into Chesterfield off the moors to the west. A key site along the brook is Holme Brook Valley Country Park. The park supports a range of habitats and has benefited from sympathetic management and enhancement over the years. Part of the Country Park is designated as a Local Wildlife Site and there is the potential to extend the designation to include a larger area. To the east of the Country Park the brook flows into more urban areas and the extent of green space declines, but there are still small woodlands, patches of grassland and stream margins. As the brook approaches the more densely built-up centre of Chesterfield habitats are more limited. Opportunities for sympathetic management, enhancement and creation exist within public open space and also where urban development occurs.

Area B – River Hipper Corridor

This corridor follows the course of the River Hipper and includes at its western end fairly extensive areas of open green space with small woods and grassland. There is one Local Wildlife Site present, but other areas of woodland and grassland or the river itself have the potential for

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designation and further assessment is warranted.. There may be opportunities as part of public and private open spaces and major development in this area to enhance or restore flower rich grassland and wetland habitats.

Area C – River Whitting Corridor

The River Whitting is fed by both the River Drone and the Barlow Brook and where these watercourses enter Chesterfield there are some extensive areas of relatively undeveloped land especially around Brierley and Roughpiece Woods. Downstream from here the corridor is quite narrow and there are no other designated sites. The river is mainly wooded along its length and opportunities to extend the woodland along the river margins or create wetland or grassland habitats would help to strengthen this part of the network.

Area D – River Rother Corridor (excluding Staveley Works)

The River Rother flows through the centre of Chesterfield and is an obvious wildlife corridor. It includes several important Local Wildlife Sites; Chesterfield Canal, Bluebank Pools and Brearley Park Meadows (the latter two sites are also Local Nature Reserves). However, for much of its length (in the south particularly) there are no designations or priority habitat types present. Despite this it is considered that land adjacent to the river Rother is likely to be of value for wildlife and that opportunities for better management, restoration or habitat creation should be investigated including areas of public open space, green corridors, the Waterside regeneration area and new residential development at the former Wheeldon Mill. The Staveley Rother Regeneration Route represents the risk of further habitat fragmentation but also provides an opportunity for a new linear habitat link. Further field work is needed to gather information on parts of this corridor.

Area E – River Rother (including Staveley Works Corridor)

This area also follows the River Rother and Chesterfield Canal, but also takes in the former Staveley Works across to Hartington Tip. This area is the focus of planned significant regeneration and development and will change dramatically over the coming years. It is also the area where most of Chesterfield's priority habitat type 'open mosaic habitats on previously developed land' is to be found. Finding a balance between the wildlife value of some of this area and the need for development is challenging, but there will be opportunities and strategies that should secure retention of some existing habitats and the creation or enhancement of habitats nearby including habitat links. Opportunities to improve the coherence of the ecological network should be sought as part of the regeneration of the area. HS2 is likely to have significant implications for the habitats in this area and it will present both threats and opportunities.

Area F – River Rother North

The corridor along the Rother continues northwards out of the Borough. This area includes a Local Wildlife Site and there are plans to re-instate

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the former river meander. This could result in further opportunities for habitat enhancements and creation in this section. HS2 is likely to have significant implications for the habitats in this area and it will present both threats and opportunities. Opportunities to improve the coherence of the ecological network should be sought as part of any necessary mitigation and compensation resulting from HS2

Area G – Trough Brook

This is a relatively small area that includes ancient and secondary semi-natural woodlands, scrub, grassland and a lake along the Trough Brook. However, it is within a wider tract of open land linking to open countryside and is identified as a Strategic Gap in the Local Plan. There are four Local Wildlife Sites present and some additional management would be beneficial. Opportunities to extend habitats or create new habitats may be more limited in this area unless major urban extensions occur or funding is available for private land management for biodiversity gains. Management schemes for agricultural land should be encouraged, if available, to improve habitat size and the networks coherence

Area H – Doe Lea Wetland inc. Norbriggs, Netherthorpe and Poolsbrook

This is one of the most significant areas of the ecological network in Chesterfield as it includes five Local Wildlife Sites (Norbriggs Flash, Netherthorpe Flash, Doe Lea Flash, Poolsbrook Flash and the Ireland Wildlife Area within Poolsbrook Country Park) and several linking areas of wetland habitat that are identified as potential Local Wildlife Sites. Collectively these sites form one of the largest areas of connected wetland habitat in north-east Derbyshire. There is a need for better management and restoration of some areas, control of invasive species and improvements to access and amenities. Opportunities for further river and wetland restoration works as well as possible grassland enhancement also exist in several places. HS2 is likely to have significant implications for the habitats in this area and it will present both threats and opportunities. At the moment it is possible that Doe Lea Flash and Poolsbrook Flash could be entirely lost as a result of HS2. Opportunities to avoid and minimise impacts and to ensure that enhancements improve the coherence of the ecological network should be sought as part of any necessary mitigation and compensation resulting from HS2.

Ecological network outside of the above strategic areas

The ecological network also includes habitats and species outside of the above corridors and opportunities are likely to be present in these areas relating to core sites (Local Nature Reserves, Local wildlife Sites and Priority Habitats) or stepping stone sites (smaller areas of open green space).

2.2 Ensure key priority habitats are protected and enhanced

This section contains a brief description of each priority habitat, explains the issues affecting it and sets out the targets that need to be achieved. Targets reflect those in the UKBAP and Lowland Derbyshire LBAP.

2.2.1 Wildflower-rich Grassland

Objectives for Wildflower-rich grassland

- * Increase the area of wildflower-rich grassland by 5 ha by 2029
- * Ensure that there is no further net loss or fragmentation of wildflower-rich grassland in the Borough.

Wildflower rich grassland is a surprisingly rare habitat across much of England. The decline is largely a result of modern farming practices (which tend to replace herb rich grassland with more agriculturally productive grassland) and the expansion of towns and cities. In Chesterfield most of the remaining 50 ha of flower rich grassland is on neutral soils, but a few areas are more acidic in nature. Some of the grassland is close to streams and rivers and low lying so can be seasonally quite wet. The grassland present includes two priority habitat types 'Lowland Meadows' and 'Lowland Dry Acid Grassland'.

The remaining wildflower-rich grassland sites in the Borough are typically small and isolated. Most are found within Holme Brook Valley Country Park, Poolsbrook Country Park, Norbriggs Flash LNR, Brearley Park LNR, Phipps Open Holes and alongside the river Hipper. Smaller fragments survive within post-industrial sites, railway margins, roadside verges, canal banks and to a lesser extent in parks and cemeteries. Whilst much of the resource lies within designated sites the smaller fragments are usually undesignated and can be vulnerable to changes in management, development, neglect and disturbance.

Opportunities for the restoration and/or creation of wildflower grassland exist within brownfield sites, farmland, parks and other open spaces, churchyards and road verges. This has been achieved at Pools Brook Country Park where wildflower-rich grassland has been created and remnant hay meadows retained. There is the potential for Chesterfield Borough Council to explore managing their own farm and grazing tenancies for increased biodiversity. The 93-hectare (230-acre) farm estate and 18 hectare (45-acre) grazing tenancies are a mix of habitats

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and offer a real opportunity to deliver biodiversity benefits and develop them as good practice examples.

2.2.2 Rivers and Streams

Objectives for Rivers and Streams

- * Continue to work towards improving the water quality of rivers and streams in the Borough in accordance with the Humber River Basin Management Plan.
- * Seek opportunities to restore and enhance the structural characteristics of rivers and streams for the benefit of wildlife.

This habitat type includes the national priority habitat 'Rivers'.

There are few lowland rivers and streams in England that could be described as natural. Most have been modified for flood defence, navigation or development, resulting in the loss of their natural banks, meanders and shallows. However, they are still one of our most important habitats for wildlife, especially when they adjoin wetland habitats such as wet meadows, reedbeds or woodland. Rivers and their wetlands are important for many species including water voles and white-clawed crayfish, both priority species in Chesterfield.



Rivers and streams act as corridors for the movement of wildlife throughout Chesterfield, linking it to surrounding countryside. Important watercourses include the River Rother, the Rivers Doe Lea and Hipper and Holme, Callow and Barlow Brooks. The River Rother was once described as the dirtiest river in Europe, but recent changes have led to a dramatic improvement in water quality. This will be a continuing concern and it is important that the rivers and streams of the Borough are monitored and any pollution controlled. The Rother remains a priority for action, with many stretches through the town centre having been culverted and straightened (canalised). However, the Rother is an important site in the county for both water voles and white-clawed crayfish, and this increases the importance of enhancing the habitat further to maintain and expand these populations. The rivers in the Borough are also important nationally for the corridor of wetlands they provide for migrating birds. Development and flood protection banks limit the width of the river corridor, but adjoining areas such as those at Pools Brook Country Park contribute much needed additional habitat for wildlife.

The wildlife of rivers and streams faces a number of threats including culverting, canalisation, building on riverbanks, pollution and invasion from non-native species. Himalayan balsam is widespread and extremely invasive and can dominate the bankside vegetation within whole river

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systems threatening the diversity of native plant and animal communities. Other invasive plant species such as Giant hogweed and Japanese knotweed can also be a problem. Introduced American signal crayfish and mink are also a major problem for the native white-clawed crayfish and the water vole, as described in later sections. The recreational use of the Borough's rivers and streams for fishing, canoeing and riverside walks increases the opportunity for people to enjoy the wildlife of the river. However it may also increase disturbance to habitats and species and so needs to be carefully managed.

Recent river restoration initiatives have included the re-instatement of the Doe Lea to its former meanders within the Norbriggs Flash LNR.

2.2.3 Standing Waters – Ponds, Lakes and Canals

Objectives for Standing Waters

- * Ensure that ponds, lakes and canals of high biodiversity value are protected and any further losses are fully mitigated or compensated for.

- * Create five new ponds by 2029

This habitat type includes the national UK BAP priority habitats 'Eutrophic Standing Waters' and 'Ponds'.

Standing waters, which include ponds, lakes and canals, support a very wide variety of species, many of which are entirely dependent on them for all or part of their life cycles. They can support a wide range of plant and animal communities including aquatic and marginal vegetation, wet grassland, trees and shrubs on their edges. These support species including frogs, newts, dragonflies, water beetles and plants such as common water starwort, yellow water lily and spiked water milfoil. Those ponds and lakes that have developed naturally are of the highest value for wildlife. However, sympathetically designed man-made ponds and lakes can be very valuable, particularly in urban areas. Clusters of ponds are generally more valuable than a single large one especially if they are of a range of types, from shallow overgrown ponds to deep ponds, all at different stages in their development. This variety of types and varying number of ponds is important for species such as great crested newts and water voles.

The ponds and lakes of the Borough of Chesterfield vary greatly in type. They include ornamental lakes such as those at Queens Park, fishing ponds such as Ringwood Lake, old industrial reservoirs, subsidence flashes and those created as part of reclaimed



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sites, for example those at Holmebrook Valley Park and Pools Brook Country Park. Smaller examples include farm, garden and school ponds. Standing waters also include the reinstated sections of the Chesterfield Canal, which when completed will provide a wildlife corridor through the Borough. The canal is important for water voles, as are the lakes at Pools Brook Country Park, whilst Brockwell Reservoir Local Wildlife Site provides ideal habitat for amphibians, and Blue Bank Pool Local Wildlife Site is important as a bird breeding area, including the elusive water pipit. The series of standing waters throughout Chesterfield are important for over-wintering and breeding wildfowl, and form part of an important national network of habitat along bird migration routes. Other wildlife, including grass snakes, bats and kingfishers also use these habitats as ideal hunting grounds. Within urban areas the feeding of wildfowl can be popular amongst locals. However, very high densities of ducks and geese can lead to water quality problems causing plants in and around the pond to die. Action may need to be taken to limit their impact accompanied with public awareness raising.

Standing waters are vulnerable to pollution due to their size and the low volume of water available to dilute pollutants. Eutrophication (nutrient enrichment with phosphates and nitrates) can lead to problems with algae blooms, whilst inlet water quality, pollution and rubbish can all affect the water quality of standing waters and therefore reduce their biodiversity. Poor management such as the removal of marginal vegetation or mowing right up to the water's edge can also lead to a loss of biodiversity. Many pond and lake species depend on other habitats as well, and it is important that they do not become isolated from these habitats. Establishing a 'buffer zone' around each pond, where no fertiliser or herbicide is applied and where mowing is restricted, will mitigate many of these problems. It will also act to filter any inputs outside this zone and provide a safe refuge for species using ponds. Increased urbanisation can also lead to the direct loss of ponds through infilling.

While ornamental fishponds and fishing lakes can have value for wildlife, stocking previously fish-free ponds with fish can have a severe effect on many wild plant and animal species. The growth in popularity of garden ponds is adding to the available network of wetlands in the Borough and providing valuable refuges for wetland species such as amphibians and grass snakes. However, this trend has also led to the introduction of non-native species such as New Zealand pigmyweed (*Crassula helmsii*), water fern (*Azolla filiculoides*) and parrot's-feather (*Myriophyllum aquaticum*), which are highly invasive. These plants are not confined to ponds and are spreading throughout wetland and river systems, posing a considerable threat to native wetland species. It is important to educate the general public about the threats these non-native species pose to our wetland systems.

2.2.4 Lowland fen and Reedbeds

Objectives for lowland fen and reedbeds

- * Ensure that there is no further net loss or fragmentation of lowland fen and reedbed.
- * Increase the area of lowland fen and reedbed in favourable management by 2029.
- * Create 1 ha of new lowland fen and/or reedbed habitat as part of agri-environment schemes, development works or other projects by 2029.

Lowland fen and reedbed include a wide range of vegetation types associated with the margins of reservoirs, ponds, rivers and streams or with low lying areas of permanently or seasonally waterlogged ground.

They are characterised by large bulky plant species including sedges, bulrushes and grasses such as common reed. They are widespread but scattered and fragmented across the UK. In the past they would have been more common than they are today. Lowland fen and Reedbed are both priority habitat types.

Swamps are wet for at least part of the year and occur in river valleys and basins as well as valley sides. They can be dominated by lesser and greater pond sedges, bur-reed, common reedmace or various grasses such as reed sweet grass. Tall-herb fens are often permanently waterlogged and generally groundwater fed. These habitats can support a diverse range of species, but are characterised by meadowsweet, wild angelica and hemp-agrimony. Reedbeds are species poor fens mainly dominated by single stands of common reed.

Within the Borough swamps, tall-herb fen and reedbeds are primarily located along the river valleys of the Rivers Doe Lea and Rother. There are also flushed sites associated with mining subsidence, which form marshy areas. Current estimates of the extent of these habitats are difficult as there are many smaller stands that have yet to be mapped. Potentially lowland fen may extend over 2 to 4 ha and reed bed possibly 6 to 9 ha. The concentration of lowland fen, reedbed and wet grassland together with open water and wet woodland is especially significant along the Doe Lea and is best seen at Norbriggs Flash, Netherthorpe Flash and Poolsbrook Country Park.

These sites are important for birds, great crested newts, grass snakes, a number of rare invertebrates and a diversity of plantlife. Bluebank Pools,

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another Local Wildlife Site, also contains a range of habitats including reed sweet grass and reedmace with other associated species including great hairy willowherb, meadowsweet and bittersweet. Again this site is important for great crested newts, uncommon invertebrates and as an ornithological site. Brearley Wetland Local Nature Reserve supports some of the best examples of floodplain meadow in the County and although much of it is grassland it does include elements of fen. It is this variety of wetlands that provides a significant interest for wildlife in the Borough.

These habitats are vulnerable to drainage, nutrient enrichment, pollution and unsympathetic management. Many have declined in extent and quality within the Borough over the last 25 years. As a consequence sites are sometimes becoming scrubbier and wooded, whilst others are now small and isolated. The main focus for these habitats is to encourage better management and restoration. Opportunities for creating these habitats are likely to be limited, but there is potential as part of agricultural schemes, within Sustainable Urban Drainage Schemes as part of development and within restored or remediated brownfield sites.

2.2.5 Broad-leaved Woodland

Objective for Broad-leaved Woodland

- * Ensure no further net loss or fragmentation of broad-leaved woodland.
- * Increase the area of broad-leaved woodland in the Borough to help extend, buffer and link existing woodlands.
- * Where there is opportunity and it is appropriate, seek to maximise broad-leaved tree planting in new and existing public open space.

This habitat type includes the national priority habitat 'Lowland Mixed Deciduous Woodland'.

All broad-leaved woodland is valuable for wildlife, but older longer established types are particularly important. Ancient woodland is that which has existed since at least 1600. It is one of our most important wildlife habitat, harbouring a unique and diverse range of plants and animals, some of which are found only in woodland of this age. Secondary semi-natural woodland is that which has regenerated naturally (i.e. has not been planted) since 1600, and is old enough to have developed a diverse flora and fauna. These are the most important types of woodland for wildlife, but planted woodlands can also



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be valuable habitats, particularly if they are made up of species that naturally occur in the local area. There are approximately 360 hectares of woodland in Chesterfield. Less than 12% of this area is considered Ancient woodland and some of the ancient woodland sites have been replanted with plantations. Most of these plantations are broadleaved woodland (60-70% Forestry Commission figures). Chesterfield Borough Council has planted around 32ha of new woodland in the last 20 years.

Woodland plants are diverse and include bluebell, early purple orchid, common gromwell, columbine, dog violet and cowslip. These in turn support many invertebrates, including speckled wood and white letter hairstreak butterflies. Birds such as woodpeckers, spotted flycatcher, bullfinch and nuthatch, and mammals such as stoat, badger, fox and shrew all live in woodland. Dead wood is vital for many invertebrates, fungi, ferns and lichens, but is often removed in the name of tidiness and for safety reasons.

Most semi-natural woodland within the Borough is secondary woodland that has grown up on otherwise abandoned mineral extraction sites, or mature plantation sites. These sites are important for the wildlife they support and a priority for continued enhancement. Many are currently Local Wildlife Sites and are therefore of significant interest already. These include Ashgate Plantation, Brierley and Rough Piece Woodlands and Kings Wood Disused Railway. Westwood Local Wildlife Site is the only significant area of Ancient Woodland in the Borough. Woodland trees include oak, ash, elm, rowan and wild service tree. It is a priority to control the spread of non-native plants that can out compete these native species, particularly sycamore and rhododendron.

The Borough's previous industrial heritage and other built development (e.g. housing) coupled with neglect has resulted in a landscape depleted in individual trees, copses and woodlands. Remaining woodlands form an important visual, recreational and wildlife resource. It is a priority in the area to establish more woodlands and small copses and utilise any opportunity presented by reclamation and restoration of industrial land. However, this should be pursued sensitively and not at the expense of other important habitats. It is also important to address the need for management of any remaining woodland to ensure that it is managed favourably, balancing the needs of wildlife and recreation, and to link woodlands with new planting to allow animals and plants to spread between them.

Individual trees in parkland or along roads and streets are also an important resource, providing some of the benefits of woodland and small copses in an urban setting. It is important that these trees are recognised for their conservation and amenity value and protected from mismanagement and loss. If loss does occur there should be a programme of replacement.

2.2.6 Hedgerows

Objectives for Hedgerows

- * Protect hedgerows and ensure that there is no net loss or fragmentation of key ancient and/or species-rich hedgerows in the Borough.
- * Where losses occur ensure replacement hedgerows are planted that serve as links to other habitats in the ecological network
- * Encourage sympathetic management of hedgerows
- * Secure the planting and favourable management of 2km of new mixed native species hedgerow by 2029, particularly where this will extend and/or link important hedgerow or woodland areas.
- * Identify and Map native mix, species rich and ancient hedgerows in the Borough on GIS

This habitat type includes the national priority habitat 'Hedgerows'.

Hedgerows are not only important habitats in their own right, but they also play a vital role as wildlife corridors. Mammals such as stoats, weasels, shrews, voles and bats all use hedgerows both as a home and a highway. An ancient hedgerow can also provide an indication of historical field patterns and parish boundaries. Large ancient hedgerows made up of native trees and shrubs are the most beneficial to wildlife, although all hedgerows have some value. Ancient hedgerows are often remnants of ancient woodland from over one thousand years ago when modern field patterns were being established. Plant diversity is dependent on origin, past management and continued presence in the landscape, generally the older the hedge the better the diversity. However, more recent hedges can be species-rich depending on their origin, and may therefore be important for wildlife.

Hedgerow trees such as ash, oak and elm grow alongside shrubs such as dogwood, hazel, holly, goat willow and hawthorn. Black bryony, white bryony and dog rose contribute to a year-round display of colour with blossom in the summer and berries in the winter. Hedgerows provide a valuable habitat for many insects such as the brimstone butterfly whose larvae feed on alder buckthorn, and meadow brown, wall, gatekeeper, small skipper and holly blue butterflies to name but a few. Hedgerows are very important for nesting birds and support species such as linnet, tree sparrow, song



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thrush, bullfinch, yellowhammer, garden warbler, blackcap and whitethroat, all of which are declining.

In 2009 a survey of hedgerows in Chesterfield was completed. The results of the survey of 322 hedgerows covering 33km were:

- * 98% of hedgerows were made up of more than 80% native species, and would therefore fall within the UKBAP priority habitat.
- * 47% were found to be species-rich (containing 5 or more native woody species per 30m section). This is above the national average of 42%.
- * Hedgerow trees are an important feature, being present in 64% of hedgerows.
- * The main land uses adjacent to hedgerows were grassland, arable and roads or routes.
- * 53% of hedgerows were in a favourable condition for biodiversity.
- * Connectivity of the hedgerow resource was considered to be low, with the average number of connections per hedgerow being 1.86.

Ancient species-rich hedgerows in the Borough include those at Holmebrook by Brockwell and in the River Doe Lea Valley associated with older roads, lanes, footpaths and bridleways. Many of these, however, are neglected and in need of management. Other hedgerows in the Borough are under pressure from agriculture, inappropriate management and the planting of non-native plants, particularly in parks and gardens. They can be neglected and have gaps with reduced value for wildlife. Hedgerow trees like elm have also disappeared through disease and subsequent removal. The management of a hedge is important; traditionally this was by laying on a rotation to maintain the structure. Management is often undertaken that is unsympathetic due to the methods used (mechanical flailing) and timing. This reduces the value of hedgerows for wildlife by reducing cover, eliminating associated woodland flora and the loss of flowers and berries that are vital food sources for many species.

Possibilities exist for the extension and planting of new hedgerows on areas of farmland, school grounds and private gardens as well as Borough Council land, including the edges of amenity grassland, parks, school grounds and playing fields, and roadside verges. Planting new hedgerows between existing habitats will link them together into a network of sites across the Borough. When planting new hedges, always use locally

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sourced species native to the Borough of Chesterfield. This is particularly important on mineral restoration sites where there has been a history of planting single species straight hedges, devoid of trees. There are also opportunities to increase the biodiversity value of existing hedgerows through changes in their management.

The Hedgerow Regulations Act 1997 sets out criteria for important hedgerows based on their age, archaeological and ecological interest and local distinctiveness. Hedgerows meeting these criteria are protected from removal. These regulations do not apply to garden hedges.

2.2.7 Open mosaic habitats on previously developed land

Objectives for open mosaic habitats

- * Identify the most important areas of open mosaic habitat for biodiversity and ensure these are mapped and their presence is fully recognised in land management and planning decisions.
- * Ensure that open mosaic habitats important for biodiversity are wherever possible protected through the planning system.
- * Where there are impacts on open mosaic habitats ensure that these are fully mitigated and compensated through habitat management, enhancement and creation elsewhere across the Borough.

The habitat type is recognised as a UK BAP priority habitat type 'Open Mosaic Habitats on Previously Developed Land'. It is strongly associated with brownfield land and is typically found on former collieries, spoil heaps, ironworks, railway land, quarries and sometimes derelict building sites. There are extensive areas of land within the Borough that are classified as Brownfield land and within these it is estimated that the habitat could be present on as much as 160 ha. The best examples occur where substrates allow the development of skeletal soils, the topography is varied and there has been long enough for the vegetation to establish. Often there is a mosaic of habitat such as scrub, swamp, tall herb, ponds, bramble and open short grasslands present.

These sites provide a refuge for many protected, rare and declining species such as great-crested newt, grass snake, birds like lapwing and little ringed plover, butterflies including dingy skipper and small heath and a host of other invertebrates including many that are regionally or even nationally rare. These sites are often undervalued and more than half of the area is threatened by development and subsequent landscaping and remediation.



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These sites play an important role in providing wildlife corridors and make an important contribution to the ecological network. Retaining key areas will help to conserve wildlife and create new greenspace for people.

Examples include Piccadilly Cottages (a Local Wildlife Site) and land in and around the former Stavely Works and Hartington Tip where former spoil has been colonised by scrub providing both botanical and entomological interest.

2.2.8 Public Open Space, Gardens and Allotments

Objectives for Open Space, Gardens and Allotments

- * Identify areas within public open space that could be enhanced through habitat creation or management and proactively seek external funding for habitat enhancement and creation in appropriate locations
- * Ensure that allotments are wherever possible protected from development
- * Ensure that green footpath and bridleway links to the countryside are maintained and enhanced.
- * Promote 'wildlife friendly' gardening.

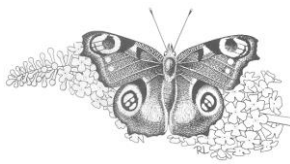
There are over 400 hectares of public open space in the Borough, including formal parks, country parks, cemeteries and two Local Nature Reserves. The Parks and Open Spaces Strategy (2001) found that many suffer from a poor overall structure and landscape integration, with a bias towards amenity open space over natural areas. The current Strategy (2014) noted that accessible Natural/semi-natural green space is unevenly distributed across the Borough and there are noticeable gaps. In order to address this it proposed that maintenance regimes in parks and open spaces should be adjusted where appropriate to increase biodiversity and improve access to nature. This offers a huge opportunity to improve the overall biodiversity value of urban habitats in Chesterfield and should be encouraged. Recent work on updating information on the Public Open Space provision in the Borough has also highlighted a need for more locally accessible natural and semi-natural spaces and a demand for more 'naturally' landscape play areas.

Garden ponds, hedges, trees and compost heaps all support a diversity of species. Often these features are now more common in gardens than in the countryside, making them essential for the survival of many species. However the value of a garden for wildlife depends on a number of

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factors. Research by the London Ecology Unit suggests that bird numbers and diversity decrease as garden size decreases. It is also suggested that garden biodiversity is increased dramatically where a number of larger gardens adjoin each other, where features such as mature trees have been maintained within gardens or where ponds have been created.

Garden ponds can offer important habitat for amphibians such as the smooth newt and common toad, whilst garden plants such as buddleia can provide a nectar source for bumblebees and common butterflies such as the peacock. Compost heaps, particularly on allotments where there is less disturbance, provide essential resting and breeding sites for hedgehog and grass snake.



Gardens and allotments can form an intricate network of green corridors across an urban area. This network will facilitate the movement of species between areas of high biodiversity value.

Gardens that adjoin these areas are particularly important because they may themselves provide an important wildlife resource. Garden ponds are particularly important in urban areas and should not be underestimated for their importance to amphibians and other wildlife.

Chesterfield has 28 Local Authority and 8 private allotment sites. This is higher than the national average, and reflects the typical provision for former mining communities. The Parks and Open Spaces Strategy recognises that there is little management and promotion of Local Authority sites, with many underused and overgrown. Although overgrown and underused allotments can provide important greenspaces and wildlife refuges, the Strategy highlights the need for a change of use with recommendations that they could be used for wildlife benefit. It is important to identify the extent of gardens and allotments within Chesterfield and in particular to identify those that may be of importance as biodiversity habitats and those that adjoin areas that could be encouraged to increase their nature conservation interest to form a network of green spaces.

The most important threat to garden biodiversity is a lack of awareness about their role as a nature conservation resource. This lack of awareness can result in unwitting damage being caused to the wildlife value of the garden. Cutting hedges during the bird breeding season, removing leaf litter and deadwood or stocking a previously fish free pond with fish, can all have consequences for garden biodiversity, and could be avoided. The use of garden chemicals can also have an impact, for example the use of slug pellets in gardens has been associated with the decrease in song thrush populations. It is a priority to promote the wildlife and sustainable

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benefits of organic gardening, to local gardeners and allotment holders. Mastin Moor Community Gardens aim to be cultivated organically and could be used as a showcase to other local gardeners.

Within urban areas there can be pressure to develop large gardens for housing or off-street parking, which can result in a reduction of garden size and structural diversity, particularly in old established gardens. Underused allotments can become targets for development. Local people could be encouraged to manage an allotment as a wildlife garden, thereby maintaining its interest or its use could be changed to become wildlife-rich open spaces. Due to government pressures to increase housing densities, new housing developments are likely to have smaller gardens or none at all. It is important to try and ensure that new gardens will be provided where possible or that there is an adequate provision of communal open green spaces.

This habitat action plan should be read alongside the species plans for amphibians, garden birds and hedgehogs, which contain more specific recommendations.

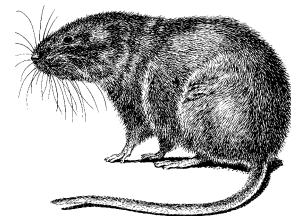
3.0 Protection and enhancement of flagship species populations

The following species have been chosen because they would benefit from or require specific actions over and above those for the habitats they are found in. They are also particularly characteristic of Chesterfield and/or readily identifiable by the public. Most are identified as priorities in the UK and Lowland Derbyshire BAPs.

3.1 Water Vole (*Arvicola terrestris*)

Objective

- * To maintain viable populations of water vole on the Chesterfield Canal, Pools Brook and River Doe Lea and where possible increase the distribution of the water vole within the Borough.



©English Nature

The water vole is a UK BAP Priority Species.

It is the largest British vole species and predominantly plant eating, but will occasionally feed on snails, insects, crayfish and even carrion. They live in burrows on the banks of streams, rivers, canals and ponds, where water is slow flowing or static and the steep soft banks are covered with grasses,

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flowers, sedges and rushes. This vegetation provides water voles with cover, food and nesting material. Banks densely lined with trees are less suitable.

Water voles were once common and widespread throughout the country, but suffered a significant decline of up to around 90% by 2000. Derbyshire Wildlife Trust's ongoing monitoring programme shows a mixed picture, but there is a decline across most of the county, especially in the south. In Chesterfield key areas for water vole include Chesterfield Canal, Pools Brook and the River Doe Lea.

There are a number of threats to the water vole. The loss of habitat, through bank degradation, engineering works and mowing of bankside vegetation, have isolated and degraded vole habitats. American mink, having historically escaped from farms, have spread to most areas of the UK. Where mink are present water voles can be hunted to extinction. The use of poison along rivers to control rats can also wipe out local vole populations.

Water voles are fully protected under section 9 of the Wildlife and Countryside Act 1981(as amended). Schedule 5 of this Act makes it an offence to intentionally damage or obstruct access to water vole burrows.

3.2 Hedgehog (*Erinaceus europaeus*)

Objective

- * Maintain a viable hedgehog population within the Borough

The hedgehog is a UK BAP priority species.

Hedgehogs are the only spiny British mammal, and were once one of the easiest to see in the wild. They are found in most lowland habitats, but are most commonly seen in areas where there is grassland close to woodland, scrub or hedgerow. Urban and suburban gardens have become particularly important to hedgehogs seeking food and nest sites.

Hedgehogs are mostly nocturnal, and can travel up to 2km in their nightly forages for food. Beetles, caterpillars, earthworms, slugs and snails are the hedgehog's favourite food, but the diet is varied and they will also eat cereals and scavenge dead animals.

Hedgehogs build nests called hibernacula in which to avoid the winter cold by hibernating, usually between November and early April. Favourite sites for these are under timber buildings, in piles of brushwood or leaves, or in

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compost heaps. If it is warm enough and there is enough food, they do not hibernate at all. The young are born between May and September, in litters of four or five.

Hedgehogs are widespread in lowland Britain, but surveys indicate that numbers may have fallen by a third to a half between 2002 and 2017. In general declines are greatest in rural areas and lower in urban areas. The main reasons for the decline are loss and fragmentation of habitats, increased use of pesticides (including slug pellets), and deaths from road traffic. Gardens have also become less suitable for hedgehogs, and the feeding of milk and bread by humans causes diarrhoea and dehydration which can lead to death.

Hedgehogs are found throughout the Borough, but anecdotal evidence suggests that they are declining.

There are many things which gardeners can do to help hedgehogs, including:-

- * Leaving piles of logs, leaf litter and compost heaps as hibernation and nesting sites, or making and/or installing a purpose built box.
- * Planting hedges instead of fences to allow hedgehogs to move between gardens and provide habitat.
- * If fences are used to provide gaps for hedgehogs to move freely between gardens
- * Checking for hibernating hedgehogs before lighting bonfires
- * Avoiding slug pellets and other chemicals
- * Ensuring that ponds have shallow sides or ramps to allow hedgehogs and other wildlife to escape if they fall in
- * Feeding small amounts of cat food and leaving water out for hedgehogs rather than milk.

Encouraging hedgehogs is a good way of combating garden pests such as snails and slugs, which form a large part of their diet.

3.3 Amphibians and reptiles

Objectives

- * To improve understanding of the distribution of amphibians and grass snake, protect species and promote their conservation wherever possible.

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Great crested newt, common toad and grass snake are UK BAP priority species.

Four of Britain's seven amphibian species occur in Chesterfield. These are the common frog (*Rana temporaria*), common toad (*Bufo bufo*), smooth newt (*Lissotriton vulgaris*) and great crested newt (*Triturus cristatus*).

The grass snake (*Natrix helvetica*) also occurs in Chesterfield and often occupies similar habitats to the amphibians.

A wide range of habitats will support amphibians and grass snake, including ponds, wetlands, woods, hedgerows, gardens and post-industrial sites. The amphibians all need water during the spring in which to lay their eggs, but spend much of the rest of the year on land, sheltering during the day under logs and stones and in other damp places. An amphibian's diet is made up of slugs, snails, beetles and other invertebrates.

Grass snakes forage in and around water feeding on amphibians and small fish and insects. They lay their eggs nearby in hedge banks, tall herbs, scrub or woodlands.

Common frogs are the most widespread and in terms of breeding are associated with fish-free shallow edged pools. Toads on the other hand prefer large deep ponds, often with fish (which avoid their bad tasting tadpoles). Toads will return to the same ancestral pond year after year for breeding. Both newt species like fish free pools with a diversity of vegetation, with great crested newts being more restricted as they prefer larger ponds. Grass snakes prefer reasonable well vegetated and pollution free ponds with an abundance of frogs, but can be found away from waterbodies where there is cover. Groups of ponds with corridors of suitable habitat between them are especially important for all the species.

All of these species are believed to be declining, mainly due to the loss of suitable ponds and terrestrial habitat. Toads and great crested newts are the most threatened, having experienced significant declines. As well as infilling, pollution, fish introduction and inappropriate management of the pond or the habitat surrounding can make it unsuitable for amphibians. Toads are particularly affected due to their loyalty to their ancestral pond, and because they migrate in large numbers during the breeding season road deaths are also significant. Two diseases, Ranavirus ('red leg' disease) and Chytridiomycosis are having a major impact on amphibian populations worldwide, but their impact on British species is not yet understood. Grass snakes are vulnerable to traffic, pollution and loss of habitat.

Great crested newts and their habitats have maximum protection under UK and European Law. This means (in summary) that it is an offence to intentionally or recklessly capture, injure or kill a great crested newt or to

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damage, destroy or obstruct its breeding or resting place. Handling, possessing or disturbing a great crested newt is also an offence without a license. Grass snake is protected under sub-section 9(1) and all of sub-section 9(5) within the Wildlife and Countryside Act 1981; these prohibit the intentional killing and injuring and trade (i.e. sale, barter, exchange, transporting for sale and advertising to sell or to buy). Frogs, toads and smooth newts are subject only to Section 9(5) of the Wildlife and Countryside Act 1981. This means that the sale, transportation or advertising for sale for these species is prohibited.

There has been no comprehensive survey of amphibians and reptiles in Chesterfield, so their detailed distribution is only partially known and as a result they could potentially be found widely across the Borough.

As ponds in the countryside have disappeared, garden ponds have become increasingly important for amphibians. Encouraging householders to create new ponds, and to look after them in a way which benefits wildlife is vital if amphibians (and many other species) are to survive. It is also important that suitable habitats for amphibians outside the breeding season, such as log piles and rockeries are provided, and that gardeners avoid the use of slug pellets and other harmful chemicals. Frogs, toads and newts are very beneficial to gardeners, helping to control slugs, snails and other pests.

3.4 Declining birds

Objectives for birds

- * Protect and wherever possible enhance populations of bird species.

Urban areas can support a great many bird species and watching birds in your garden is one of the easiest ways of experiencing nature at first hand. Common garden birds in Chesterfield include great tit, blue tit, robin, blackbird, dunnock, goldfinch and chaffinch among many others. The skies can also resound to the calls of swift, swallow and house martin and perhaps the cry of a peregrine, buzzard or kestrel.

In recent years many birds found in both urban and rural areas have declined. The house sparrow (*Passer domesticus*), bullfinch (*Pyrrhula pyrrhula subsp. pileata*), starling (*Sturnus vulgaris subsp. vulgaris*) and song thrush (*Turdus philomelos subsp. clarkei*) are all UK BAP priority species. Swifts have declined by 50% and together with swallow and house martin are vulnerable to loss of nesting sites when buildings are converted, modernised or demolished.

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As habitats in the wider countryside have become lost and fragmented, and farmland managed more intensively, gardens have become increasingly important for many species of birds. Gardens can provide the much needed linkages between larger areas of semi-natural habitats and offer opportunities for foraging and nesting for many species.

Gardeners can do a number of things to make their gardens better for birds. These include:

- * Creating nesting places by installing boxes and growing dense shrubs and climbers;
- * Providing a food source by growing British berrying shrubs like holly and elder, and plants with edible seeds, and tidying borders and cutting shrubs in late winter/ early spring to help retain seeds and fruit;
- * Encouraging harmless and beneficial insects by gardening organically, planting nectar bearing flowers and leaving 'untidy' corners;
- * Providing a water supply with a pond or water feature.

By making a garden more attractive to birds, gardeners can also attract other wildlife such as bats and amphibians.

Through the planning process there are opportunities to provide new nesting opportunities for swift, swallow and house martin either to mitigate for impacts or to provide a biodiversity gain within developments. Installing swift boxes into new builds is proven to be very effective for swifts and is nearly always welcomed by new home owners.

3.5 Bees and other pollinators

Objectives

- * Encourage and facilitate positive management of Local Wildlife Sites
- * Enhance open spaces, verges and parks for pollinators where appropriate
- * Secure biodiversity benefits for pollinators through the planning system
- * Promote wildlife friendly gardening

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Pollinating insects provide a vital service by pollinating a wide range of crops, fruit trees, garden and wild plants. In fact 80% of our native wild flowers need pollinators. Pollinators include the honey bee as well as many species of native wild insect including bumblebees, hoverflies, sawflies, wasps, butterflies and moths, beetles and bugs.

Of these the bees and hoverflies are thought to be the most important. Bees are part of the very large insect Order, the Hymenoptera, which also include wasps, sawflies and parasitic wasps. There are over 270 native species of bee in Britain, of which around 25 are bumble bees. In Chesterfield there may be around 12 species of bumblebee including red-tailed bumblebee (*Bombus lapidaries*), white-tailed bumblebee (*Bombus lucorum*) and the common carder bee (*Bombus pascuorum*).

Bumblebee's, with their round furry bodies and bumbling flight, are a familiar sight in both rural and urban areas. They are social insects, with a single mated queen forming a new small colony each spring. She forages on early flowers for nectar and pollen, then seeks a suitable nesting site in which she lays her first batch of eggs. When the first worker bees emerge (usually from mid-June), they begin foraging to provide for the growing colony. The queen remains in the nest producing new broods. From late July onwards, males and young queens are produced from the mature colony. Mating occurs, the young queens forage to build up food stores then over-winter underground or in a sheltered spot. The remaining workers and males of the colony die off by the end of the season.

Bumblebees are dependent on a constant supply of suitable flowers throughout the spring and summer. They need these both for nectar and for pollen to feed their developing larvae. They also need a place to shelter and build their nest. Carder bumblebees will make their nest in long, tussocky grass, while other species prefer undisturbed compost heaps, old mouse or bird nests, or underneath hedgerows.

There has been a 70% decline in bumblebee numbers over the past 30 years, primarily as a result of intensive farming methods which have increased pesticide use and reduced wildflowers. Three of our native species are now extinct. This is ironic given the crucial role of the bumblebee as a pollinator of crops. Bumblebees are generally associated with wildflower-rich grasslands, but several species can also be found in gardens, parks and brownfield sites, which have become increasingly important as their normal habitats disappear.

Many other species of bee and hoverfly can be found in Chesterfield and all play a role in pollination.

Gardeners can help bees and other pollinators in many ways, including:

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- * Planting bee-friendly flowers such as herbs and traditional cottage garden plants. Include a selection of flowers of different shapes (e.g bowl-shaped, bell-shaped) which will appeal to different species, as they have different tongue lengths. Avoid 'double flowers' and bedding plants such as busy lizzies, pansies and petunias, which have little or no nectar.
- * Leaving a part of the garden less intensively cultivated, to provide suitable nesting sites.
- * Creating an underground nest site by digging a hole in a dry place, putting a ball of moss or dry grass in the bottom and covering with a slab to leave a small entrance.
- * Creating an above ground nest site by filling an upturned flower pot or bird box with moss or animal bedding, and leaving old birds nests in place.
- * Avoiding insecticides (including organic ones)

Helping bees and other pollinators will also encourage other beneficial insects such as butterflies and ladybirds.

3.6 Dingy skipper (*Erynnis tages*)

Objectives

- * Identify and map the extent of suitable habitat present in the Borough
- * Ensure that development address the need to avoid and minimise impacts on the habitat used by dingy skipper and where impacts are unavoidable suitable mitigation and compensation are secured.
- * Promote and encourage the management and enhancement of suitable habitat through the Borough.

The dingy skipper, a UK BAP priority species, is a small butterfly associated with open grasslands and early successional habitats where its food plant common bird's-foot-trefoil occurs. It is in decline across much of lowland England due to loss of habitat. In lowland Derbyshire it remains widespread, but is heavily dependent upon the presence of suitable habitat within brownfield sites and as a result is under threat in many places due to re-development, site remediation and restoration.

In Chesterfield it is found around Stavely, Poolsbrook, the former Coalite works, Brearley Woods and Holmebrook Valley Park as well as a few other sites. Some of the large populations occur in the Stavely area within brownfield sites and some of this land is likely to be re-developed.

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The conservation of this species will depend upon being able to retain or re-create sufficient habitat to allow current populations to maintain their numbers and interact. A network of interconnected pockets of suitable habitat will be needed throughout Chesterfield's ecological network.

Efforts to conserve this species will also benefit the small heath, common blue, brown argus and many other grassland butterflies as well as a host of moths, flies, beetles and bugs.

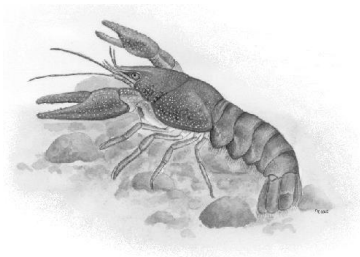
White-clawed Crayfish (*Austropotamobius pallipes*)

Objective

- * Protect and wherever possible expand the distribution of white-clawed crayfish within Chesterfield

The white clawed crayfish is a UKBAP Priority Species.

The white-clawed crayfish, a relative of the lobster, is the UK's only native freshwater crayfish. At one time it was widespread in rivers, streams and lakes throughout England and Wales, particularly in calcium-rich waters. It tends to be nocturnal and spends much of its time hiding under stones, in tree roots and in rock crevices. It is omnivorous and feeds on a wide variety of vegetable and animal matter.



Prior to the 1980s, UK populations of white-clawed crayfish were relatively stable. However the species has suffered a national decline of 25% in the last 25 years and similar trends are evident in other countries, leading to the species being classed as globally threatened.

Chesterfield is one of the last remaining places in Derbyshire with surviving white clawed crayfish populations. Populations have been recorded in the west along the river Hipper up to Walton Dam, Holme Brook and Barlow Brook. It is unknown whether the introduced American signal crayfish is present in Chesterfield, or whether the fungal disease known as crayfish plague transmitted by the American signal crayfish is also present. American signal crayfish competes for habitat with the native species, and is the main threat to its survival. The fungus can also be transmitted by a variety of other means, including water, fish, and damp-fishing equipment used in infected rivers. White-clawed crayfish are vulnerable to water pollution, particularly from the illegal disposal of synthetic pyrethroid sheep dips as well as pesticides and sewage, and also to habitat modification.

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The white clawed crayfish is heavily protected under the Wildlife and Countryside Act 1981 and the European Habitats Directive. This means (in summary) that it is an offence to intentionally or recklessly capture, injure or kill a white clawed crayfish or to damage, destroy or obstruct its breeding or resting place. Handling, possessing or disturbing a white clawed crayfish is also an offence without a license.

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4.0 Taking Action for Biodiversity in Chesterfield

This section describes the specific actions that Chesterfield Borough Council, Derbyshire County Council and Derbyshire Wildlife Trust, working with others, will aim to take to help achieve the targets set for each priority habitat and species. There are four common themes to the work required, under which all of the actions for each habitat and species fall. The tables also indicate the lead organisation/s for each action to ensure its successful implementation.

Codes for organisations

Organisation:	
Code	Organisation
BC	Butterfly Conservation
CBC	Chesterfield Borough Council
DWT	Derbyshire Wildlife Trust
DCC	Derbyshire County Council
NE	Natural England
DARG	Derbyshire Amphibian and Reptile Group
DMG	Derbyshire Mammal Group
NT	National Trust
EA	Environment Agency
CCP	Chesterfield Canal Partnership

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FC	Forestry Commission
LCG	Local Community Groups

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4.1 Survey and Monitoring

Surveying Chesterfield will provide information on habitats and species and where they are found. Good information is essential if informed decisions about the use and management of land in the Borough are to be made. It is also vital that we can monitor the success of our actions.

ACTION	Lead Organisation	To be done by	Key Delivery Mechanism(s)
1a) Establish monitoring systems for progress against targets.	CBC/LBAP	2019	Greenprint Partnership
1b) Continue the rolling programme of Local Wildlife Site (LWS) monitoring and report on positive management for the Local Data List.	DWT/CBC	annual	DWT / CBC SLA
1c) Identify and assess the biodiversity value of open spaces and other land that could contribute to the ecological network.	CBC/DWT	2019	DWT / CBC SLA
1d) Co-ordinate 'citizen science' hedgehog survey in Chesterfield.	DWT / (Derbyshire Mammal Group)	2022	External funding
1e) Establish baseline data on distribution of great crested newts by 2020 and identify key breeding areas.	DWT / Derbyshire Amphibian and Reptile Group	2020	DWT / CBC SLA
1f) Continue the water vole monitoring programme	DWT	annual	DWT Project
1g) Re-survey existing populations of white-clawed crayfish by 2021	DWT	2021	External funding required
1h) Monitor dingy skipper populations	BC	annual	Volunteers
1h) Identify and map the extent of core habitat used by dingy skipper in the Borough	DWT and BC	2019	BC and DWT

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4.2 Protection

If Chesterfield's biodiversity is to be maintained in the long term, it is essential that existing valuable sites, corridors and stepping stones that link them are protected from loss and damage. These are the reservoirs from which biodiversity can be restored to the rest of the Borough. It is also important that priority species are protected from inadvertent or deliberate harm.

ACTION	Lead Organisation	To be done by	Key Delivery Mechanism(s)
2a) Ensure that Local Wildlife Sites (LWS) legally protected and BAP priority habitats and species are protected through the planning system.	CBC/DWT	annual	Local Plan and National Planning Policy Framework
2b) Ensure that areas of open space important for biodiversity, especially where these contribute to the ecological network, are protected and where possible enhanced.	CBC	annual	Local Plan and National Planning Policy Framework
2c) Ensure all UK BAP priority habitats and species outside of designated sites are protected through the planning system wherever possible.	CBC/DCC	annual	Local Plan and National Planning Policy Framework
2d) Ensure impacts on birds that nest on buildings are fully mitigated through the planning system	CBC	annual	Local Plan and National Planning Policy Framework
2e) Identify the most important areas of open mosaic habitat for biodiversity including UK BAP species and ensure these are mapped and their presence is fully recognized.	DWT/CBC	2020	DWT / CBC SLA

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2f) Ensure that woodland and trees of amenity value are protected by Tree Preservation Orders where appropriate.	<i>CBC/DCC</i>	2020	<i>Tree Officers / Development Control</i>
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2. Protection continued	Lead Organisation	To be done by	Key Delivery Mechanism(s)
2g) Discourage the use of rodenticides in areas supporting water voles. Ensure that pest control officers and agencies active within the Borough of Chesterfield are fully aware of the issues relating to water voles (i.e. correct identification of water voles, known water vole sites, how to ensure pest control does not affect water voles).	CBC/DWT	annual	Greenprint Partnership
2h) Encourage good biosecurity and hygiene amongst anglers and those working on ponds to reduce the risk from crayfish plague and amphibian diseases	CBC/EA/DWT	annual	Greenprint Partnership

4.3 Habitat Management, Restoration, Enhancement and Creation

In order to halt and reverse habitat loss, it is vital to ensure there is sympathetic management in place and to enhance and create new areas of habitat, particularly where these can link or extend existing ones. The aim is to create a network of wildlife habitats linking rural and urban areas and enabling wildlife to move and spread.

ACTION	Lead Organisation	<i>To be done by</i>	<i>Key Delivery Mechanism(s)</i>
3a) Ensure there is a clear system in place for achieving biodiversity gains in situ or through biodiversity offsetting.	CBC	2019	Development Control
3b) Ensure all Borough Council owned land, particularly sites holding	CBC	annual	Parks and Open Spaces Dept

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priority habitats or species are managed according to management plans that optimise their value for biodiversity.			
3c) Encourage and promote sympathetic management of the ecological network within the Borough.	CBC	annual	DWT / CBC SLA
3d) Encourage and support the owners of Local Wildlife Sites and other areas of priority habitat to manage their land for biodiversity, with the aim of bringing 80% into positive management by 2029.	CBC/DWT/NE	2029	DWT / CBC SLA Projects.
3e) Control and reduce invasive non-native species on county highways, waterways, DCC and CBC owned or managed land in conjunction with the Highways Agency and the Environment Agency (EA).	CBC/DCC/EA	annual	Highway maintenance. Parks and Open Spaces.
3f) Where necessary, consider appropriate mink control to protect water vole populations.	CBC/DWT/DCC	annual	External funding required
3g) Where opportunities arise seek the restoration, enhancement and / or creation of priority habitats or species in association with development and enhancement of green infrastructure.	CBC/DCC	annual	Local Plan / Development Control
3h) Enhance or create new areas of habitat on partner owned land, making use of available grant aid, in order to deliver habitat targets.	CBC/DCC/LCG/	annual	Greenprint Partnership
3i) Encourage the installation of bird boxes for swifts and other birds within new developments.	CBC/DCC	annual	Development Control, Property Services
3j) Ensure that in all habitat enhancement and creation projects native British preferably of local provenance seed/plants are used as a priority.	CBC/DCC	annual	Development Control Greenprint Partnership
3k) Require all new developments to use native species preferably of local provenance in their landscaping wherever appropriate. Where this is not possible use cultivated species of value to wildlife.	CBC	annual	Development Control
3l) Encourage landowners/farmers to use available grant aid to restore, enhance and create priority habitats on their own land. Target those areas that will provide benefits to priority species.	FC/NE/ DWT	annual	New Countryside Stewardship / other community grants
3m) Ensure that the crayfish ark site at Holmebrook Valley Park is managed sympathetically.	EA/CBC	annual	EA strategic plan

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3n) Undertake a feasibility study for establishing a further ark site at Pools Brook Country Park.	EA/CBC	2022	Requires external funding
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4.4 Raise awareness and develop skills and knowledge

The survival of biodiversity depends on the actions of individuals. It is important to raise awareness of biodiversity issues throughout the Borough to enable full community participation in the implementation of the Greenprint and other initiatives for the benefit of wildlife. Awareness raising should also target key sectors of the community such as landowners and businesses, who can have positive and negative impacts on biodiversity.

ACTION	Lead Organisation	To be done by	Key Delivery Mechanism(s)
4a) Raise awareness about biodiversity in the Borough focusing on the key habitats and flagship species and issues affecting them.	CBC/DWT/DC C/	annual	Greenprint Partnership, events, CBC, DWT website
4b) Develop opportunities for local communities to develop new skills by participating in conservation work on local sites wherever possible.	CBC/DWT/LCG	annual	External funding for new projects
4c) Promote wildlife-friendly gardening as a vital way in which householders can help biodiversity.	CBC/DWT/DARRG/BC	Annual	Greenprint Partnership, events, CBC, DWT website

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Appendix A – Ecological Network Core Sites (Identified to date)

See CBC's [Greenprint page](#).

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Appendix B – Key Habitat Corridors (Broad Locations)

See CBC's [Greenprint page](#).

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Appendix C – Ancient Woodland

See CBC's [Greenprint page](#).

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Appendix D – Green Infrastructure

See CBC's [Greenprint page](#).

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Appendix F – Sources

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