

# Protecting and Enhancing Knutsford's Natural Environment



**Cheshire**  
Wildlife Trust

October 2017

## Introduction

Neighbourhood Planning has provided an important opportunity for communities to shape their local environment for future generations. Identifying and evaluating opportunities and constraints will mean that communities are in an informed position and therefore better able to protect their valuable natural assets.

In 2011 the government published their Biodiversity 2020 '*strategy for England's Wildlife and Ecosystem services*' which built on the recommendations of the earlier Natural Environment white paper. The mission of the Biodiversity 2020 strategy is to '*halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people.*'

The National Planning Policy Framework (NPPF), published in 2012 drew on these principles and protecting and enhancing biodiversity and creating ecological networks are central to this framework. Indeed 'biodiversity' is mentioned 15 times in the NPPF with protection and improvement of the natural environment as core objectives of the planning system. Planning policies specifically designed to address the overall loss of biodiversity are known as 'no net loss policies'. Most Local Plans now have 'no net loss' policies or similarly worded policies in place.

According to Biodiversity 2020 there are numerous ways to work towards achieving these aims, with landowners, conservation charities and individuals playing a part. However, the planning system has a central role in achieving the aims of Biodiversity 2020, particularly strategic planning, but also development control. At a local level Neighbourhood Planning has the potential to be a key factor in determining whether the aims of Biodiversity 2020 are realised, by identifying local priorities for nature conservation and ensuring these are taken into consideration in the planning process.

## Objectives of the study

The first stage to protecting and enhancing the natural environment is to identify the natural assets that exist within the neighbourhood. This report aims to identify the core, high ecological value sites for nature conservation in Knutsford, as well as sites deemed to be of medium ecological value. The high value sites are recommended for protection through the neighbourhood planning process and the medium value sites could be considered as biodiversity opportunity areas subject to further evaluation. Medium and high value sites should also act as an alert in the planning system triggering full evaluation should they be proposed for future development.

The report also aims to identify key local and regional ecological networks within the neighbourhood planning area and recommends that these are protected through the neighbourhood plan. It also identifies key characteristics associated with the landscape character of the Knutsford area so these can be referenced in planning policies.

## *Background – ecological networks*

In 2010 Professor Sir John Lawton submitted a report to DEFRA entitled ‘Making Space for Nature: A review of England’s Wildlife Sites and Ecological Network’. The report identified that we need a step change in our approach to wildlife conservation from trying to hang on to what we have, to one of large-scale habitat restoration and recreation, underpinned by the re-establishment of ecological processes and ecosystem services, for the benefits of both people and wildlife. The report also identified that this vision will only be realised if we work at local scales in partnership with local people.

The natural environment is fundamental to our well-being, health and economy, and provides us with a range of ecosystem services such as food, water, materials, flood defences and carbon sequestration – and biodiversity underpins most, if not all, of them. The pressures on our land and water are likely to continue to increase and we need to learn how to manage these resources in ways which deliver multiple benefits, for example, achieving profitable and productive farming while also adopting practices which enhance carbon storage, improve flood water management and support wildlife.

England’s wildlife habitats have become increasingly fragmented and isolated, leading to declines in the provision of some ecosystem services, and losses to species populations. Ecological networks have become widely recognised as an effective way to conserve wildlife in environments that have become fragmented by human activities.

Ecological networks generally have five components (see Figure 1) which reflect both existing and potential ecological importance and function.

- *Core areas*

These are areas of high nature conservation value which form the heart of the network. They contain habitats that are rare or important because of the wildlife they support or the ecosystem services they provide. They generally have the highest concentrations of species or support rare species. They include protected wildlife sites and other semi-natural areas of high ecological quality.

- *Corridors and stepping stones*

These are spaces that improve the functional connectivity between core areas, enabling species to move between them to feed, disperse, migrate or reproduce. Connectivity need not just come from linear, continuous habitats; a number of small sites may act as ‘stepping stones’ across which certain species can move between core areas.

- *Restoration areas*

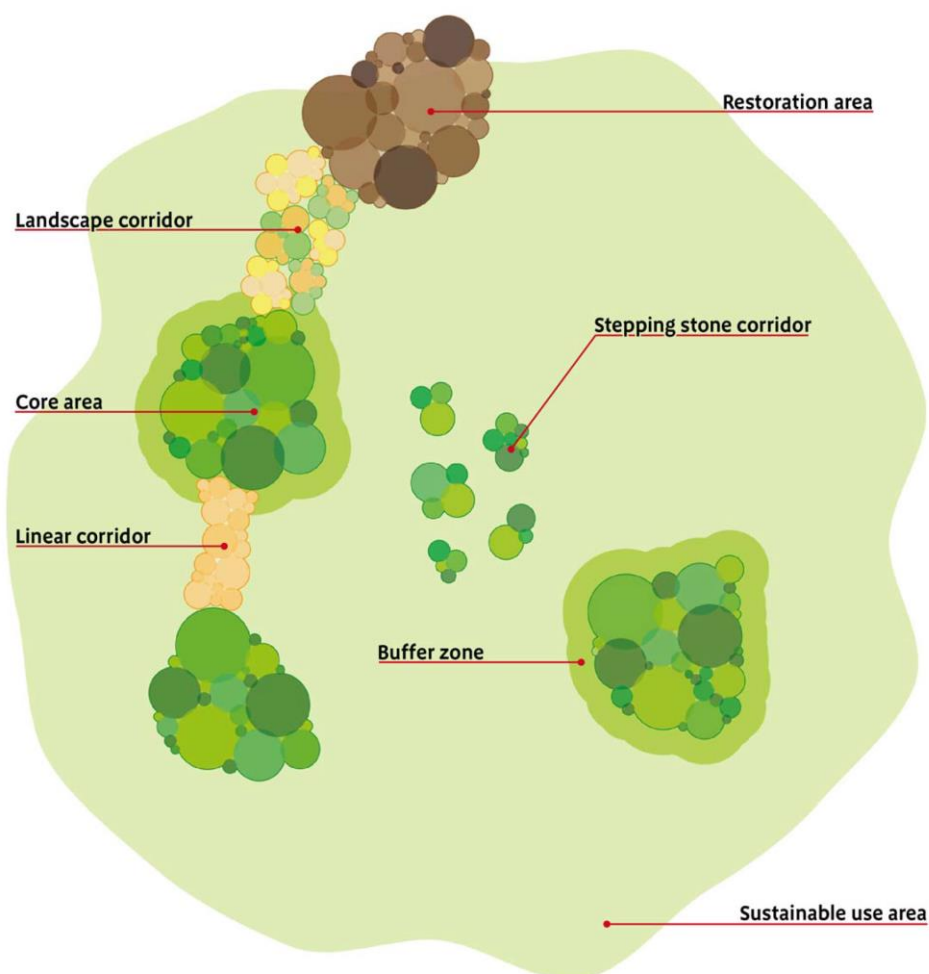
These are areas where measures are planned to restore or create new high value areas (which will ultimately become ‘core areas’) so that ecological functions and species populations can be restored. They are often situated so as to complement, connect or enhance existing core areas.

- *Buffer zones*

These are areas that closely surround core areas, restoration areas, 'stepping stones' and ecological corridors, and protect them from adverse impacts from the wider environment.

- *Sustainable use areas*

These are areas within the wider landscape focussed on the sustainable use of natural resources and appropriate economic activities, together with the maintenance of ecosystem services. Set up appropriately, they help to 'soften the matrix' outside the network and make it more permeable and less hostile to wildlife, including self-sustaining populations of species that are dependent upon, or at least tolerant of, certain forms of agriculture. There is overlap in the functions of buffer zones and sustainable use areas, but the latter are less clearly demarcated than buffers, with a greater variety of land uses.



**Figure 1.** The components of ecological networks (Making Space for Nature report)

The principles of creating coherent ecological networks have since been embedded within many planning and policy documents. The Natural Environment White Paper 'The Natural Choice', which was published in 2011, reiterated a Government commitment to move from net biodiversity loss to net gain, by recognising the importance of supporting healthy, well-functioning ecosystems and establishing more coherent ecological networks.

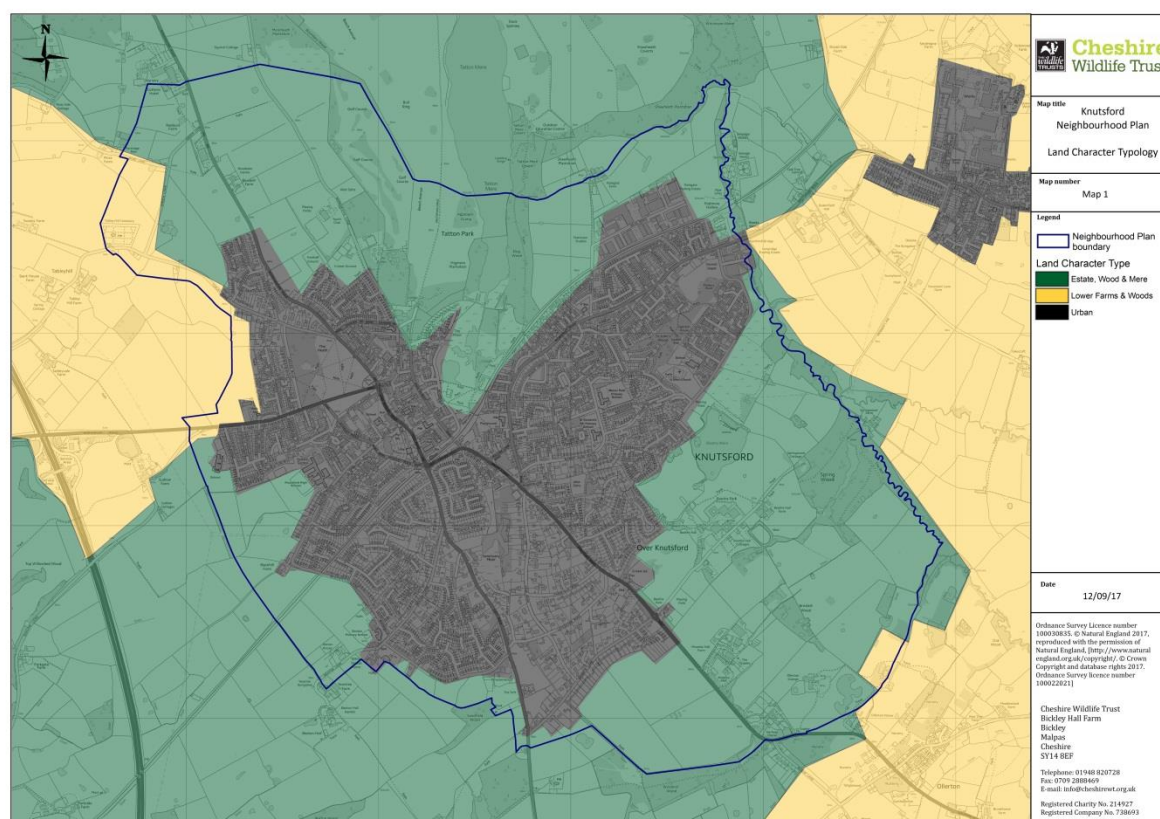
The National Planning and Policy Framework published in 2012 also includes the establishment and conservation of a coherent ecological network as a core principle including:

- The planning system should contribute to and enhance the natural and local environment by establishing coherent ecological networks that are more resilient to current and future pressures.
- Local planning authorities should set out a strategic approach in their Local Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure.
- To minimise impacts on biodiversity planning policies should identify and map components of the local ecological networks, including the hierarchy of sites of importance for biodiversity, wildlife corridors and stepping stones that connect them and areas identified by local partnerships for habitat restoration or creation; and promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations.

### *Landscape Character Assessment for the Cheshire region*

On a national level Knutsford lies within National Character Area 61 – Shropshire, Cheshire and Staffordshire Plain; a pastoral area of rolling plain which is particularly important for dairy farming. More locally the Cheshire Landscape Character Assessment of 2008 identifies recognisable patterns in the landscape and classifies the Cheshire Landscape into 20 broad Landscape Character Types (LCTs). Different aspects such as geology, landform, soils, vegetation and landuse have been used to identify character areas. The assessment is intended to be used as a basis for planning and the creation of future landscape strategies as well as raising public awareness of landscape character and creating a sense of place.

**Map 1: Landscape Character Typology**



The Landscape Character Assessment (Map 1) identifies two recognisable landscape character types (LCTs) within the Knutsford Neighbourhood planning area, namely: Estate, Wood and Mere and Lower Farms and Woods. Each LCT is subdivided into smaller Landscape Character Areas (LCAs); details of the relevant LCTs and LCAs are given below:

#### **LCT 9 - Estate, Wood and Mere (EWM)**

- Large historic houses, associated buildings including estate farms, lodges etc.
- High densities of woodland – broadleaved and mixed
- Ornamental landscape features such as parkland and lakes
- Meres, mosses and ponds. Some meres adapted for ornamental purposes
- Wildfowl habitats
- Flat to undulating relief
- Irregular, semi-regular and regular fields (up to 8ha)
- Dispersed settlement
- Leisure facilities – visitor attractions e.g. historic estates (house and land) and golf courses

#### **EWM 4 Tatton and Rostherne Character Area**

This area lies to the north of Knutsford and incorporates 400 ha Tatton Park, one of the finest examples of an historic parkland in the country. The parkland includes landscaped gardens, Tatton Meres, the Deer Park and numerous woodlands. Main roads in the area skirt the parkland meaning that it has remained intact and distinct in character. This lack of fragmentation has also added to its wildlife value with large areas that support important habitats and species. The meres and fringing

habitats are particularly notable for their wetland flora, as are the extensive areas of acid grassland in the old deer enclosure.

This is an undulating landscape with steeper slopes to the north in the area around Rostherne Mere. There are linear woodlands at Witchcote Wood, Dog Wood and Shawheath Plantation as well as scattered parkland trees and coverts within Tatton Park itself. On the outskirts of this character area are a number of individual farms some of which are estate tenancies.

#### EWM 5 Tabley Character Area

This area is defined by the three adjacent estates at Tabley, Toft and Booths Hall. The countryside is a gently undulating pastoral landscape with many intact hedgerows and a high density of woodland including planted parkland with scattered trees and more extensive blocks of woodland. Today the highly visible M6 motorway runs longitudinally through the landscape separating Tabley estate from the other two. The A50 and A537 run in the same direction and are now busy commuting routes to and from Knutsford town.

Settlement across this Landscape Character Area is low density with dispersed farms and halls. Fields are small to medium sized (up to 8 ha) and regular in shape apart from the areas to the east of Tabley and Toft where medieval field systems with small irregular fields are still visible. To the south of Knutsford is an area of more intensive arable farming with expansive fields where hedgerows have been removed or are cut low.

There are meres at Tabley and Booths Hall and further ornamental water features sit within planned landscapes with sweeping tree-lined drives and mature specimen trees. At Booths Hall there are relict Victorian gardens and at Norbury Booths is the site of a moated medieval hall with woodland, streams and ponds.

### **LCT 10 Lower Farms and Woods (LFW)**

#### Key characteristics

- Low lying gently rolling topography
- Hedgerow boundaries and standard trees in a mix of medieval, reorganised fields (irregular, semi-regular, and regular up to 8ha). Many larger open fields where traditional hedging has either been removed or replaced with fencing.
- Horsiculture – fenced horse paddocks
- High density of woodland – blocks and coverts and riparian
- Medium settlement density – mix of dispersed farms and nucleated hamlets/villages
- Mosses and some meres resulting from glacial deposits
- Large number of water bodies

#### LFW3 – Arley Character Area

This is a low rolling character area which extends from the county boundary in the north to the gas storage fields at Holcroft Moss. Across this area the fields are generally medium to large with some localised areas having a much strong network of hedgerows and field trees than others. The area to the immediate west of Knutsford and east of the M6 is intensively farmed and mainly consists of

arable fields. There are a very small number of hedgerows meaning that the landscape is open and consequently the M6 motorway is very conspicuous.

### *Natural Area*

Natural Areas as defined by English Nature (now Natural England) in 1996 are a series of biogeographical units reflecting ecological integrity land form, landuse and cultural influences. Their boundaries usually correspond to those of the Landscape Character Areas although they normally encompass multiple LCAs as they are generally larger.

Most of Cheshire, the northern half of Shropshire and part of northwest Staffordshire sit within the *Meres and Mosses Natural Area*. This is an expansive area of gently rolling agricultural plain which, at the end of the last ice age, was largely underwater. Although the vast area of water eventually drained away it left behind a wetland landscape of meres, mosses, meandering rivers and ponds. This landscape is recognised as being of international importance for its wetland wildlife.

### *ECONet – Integrated vision of the Cheshire County Ecological Network*

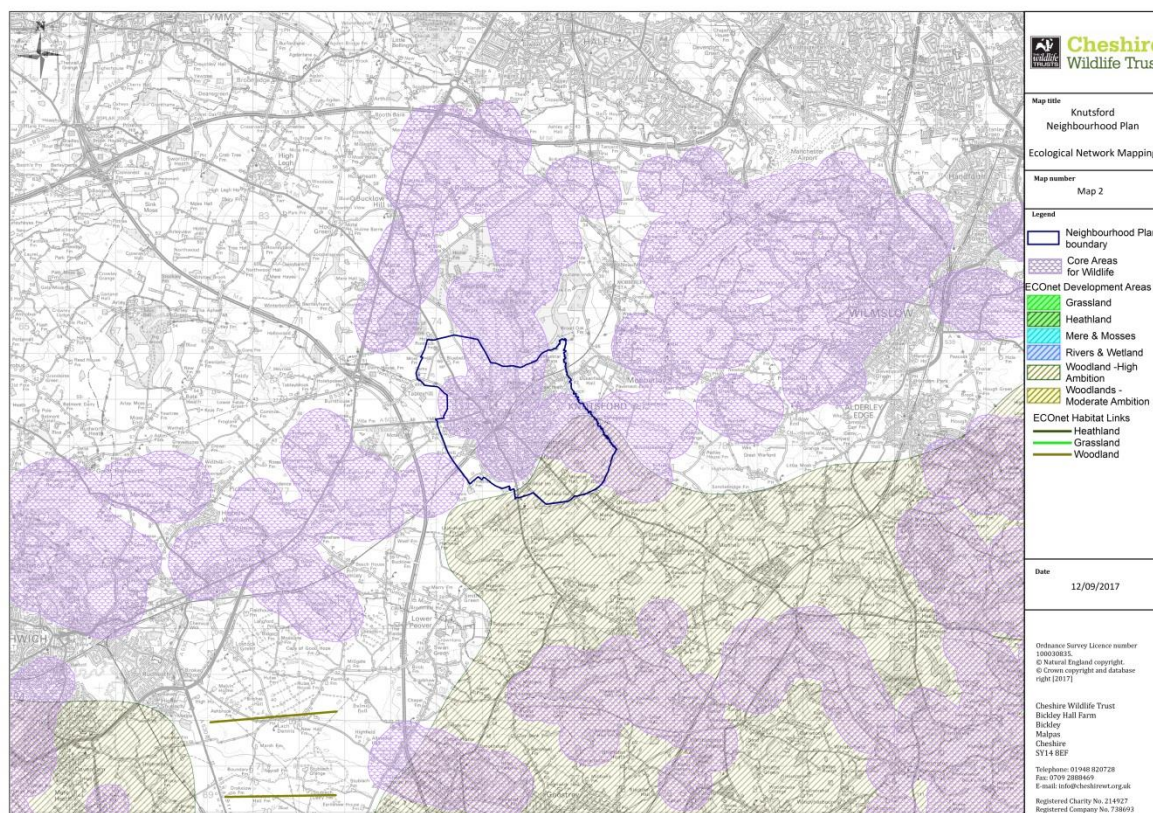
Between 1999 and 2003 the then Cheshire County Council were a partner within the Life ECONet Project. This was a project supported by the Life-Environment Programme of the European Commission to demonstrate in Cheshire and in Emilia-Romagna and Abruzzo (Italy) how ecological networks can help achieve more sustainable land use planning and management, as well as overcome the problems of habitat loss, fragmentation and species isolation.

The ECONet study is an integrated vision of a Cheshire County Ecological Network of ecological cohesion. The vision acts as a framework for nature conservation in the region by identifying areas of strategic importance for wildlife. It is intended as a guideline for making decisions in local and strategic planning in relation to biodiversity.

The 2003 study identified numerous core areas of key importance for wildlife. It also identified development areas which were assessed as having the greatest potential to contribute to the viability of the core areas through habitat restoration and creation schemes. The aim of any future work related to the county ecological network should be to expand the core areas and to provide better habitat connectivity (wildlife corridors). The guidance provided by the ECONet project has been incorporated into the conclusions of this report created for the Knutsford Neighbourhood Plan.



**Map 2: Ecological Network Mapping (ECONet)**



Due to the high number of sites designated for nature conservation the majority of the Knutsford area was identified by ECONet as a fundamental component of the county wide ecological network (shaded purple).

To the south east of Knutsford is a 'woodland development area (moderate ambition)' as it contains or lies close to important areas of ancient woodland including that at Spring wood. The extension of existing woodlands in this area (to incorporate land of current low habitat distinctiveness) would be highly desirable, particularly as a method of buffering and in the long term extending important and fragile habitats. ECONet development areas are identified as those that would benefit most from restoration of the identified habitat type.

## Methodology

### Creating a habitat distinctiveness map

In line with current Defra methodologies to determine 'no net loss' in biodiversity, habitat data from the sources listed below was attributed to one of three categories listed in the table:

Habitat type band	Distinctiveness	Broad habitat type covered	Colour on map
High ecological value	High	Priority habitat as defined in section 41 of the NERC Act, Designated nature conservation sites (statutory and non-statutory)	Red
Medium ecological value	Medium	Semi-natural habitats and habitats with potential to be restored to Priority quality. Includes field ponds.	Orange
Low ecological value	Low	E.g. Intensive agricultural but may still form an important part of the ecological network in an area.	n/a

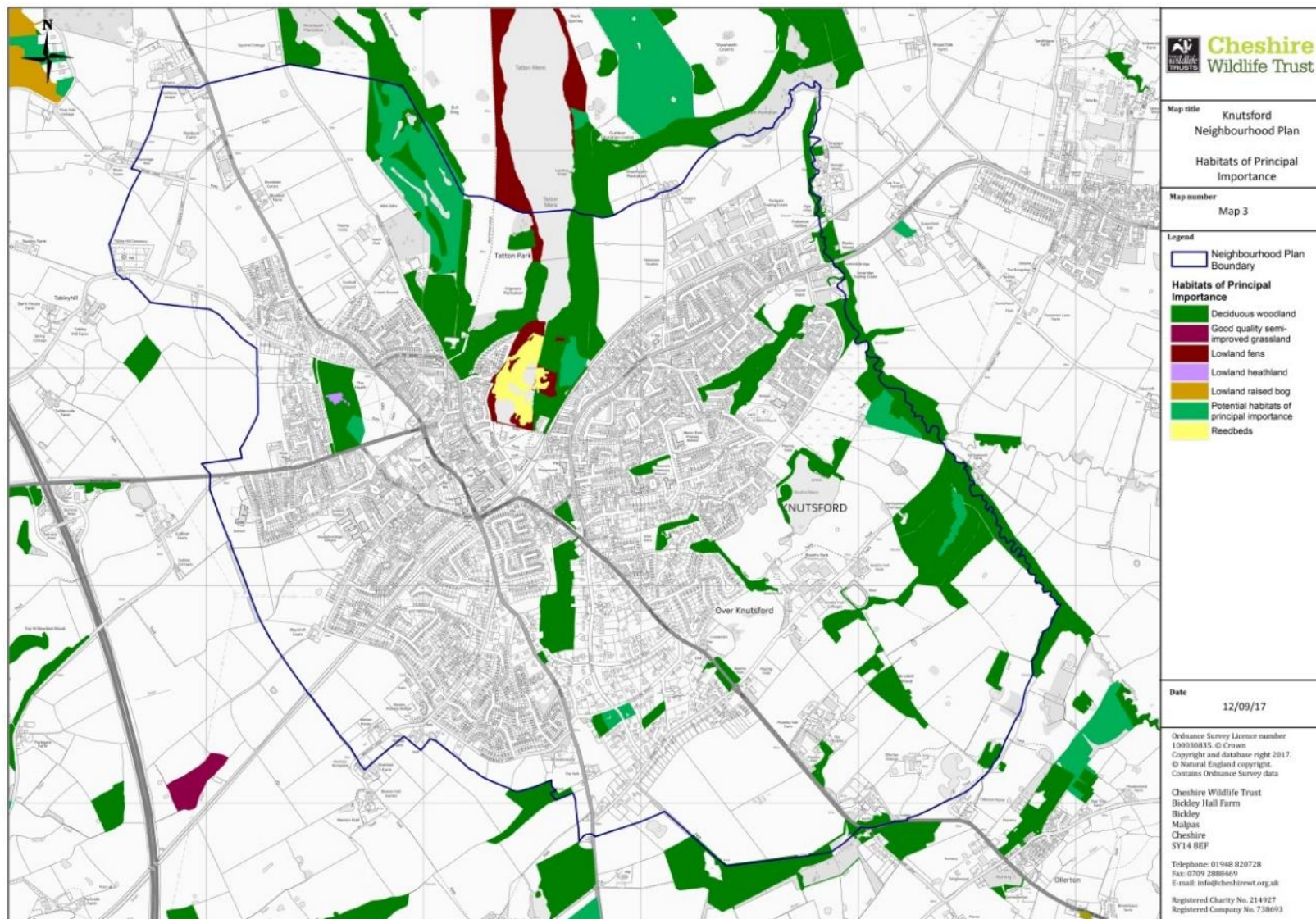
Habitat type bands (Defra March 2012)

- Several published data sets were used to produce the habitat distinctiveness maps:
  - Priority habitat Natural England – High/medium confidence coded as high distinctiveness, and low confidence coded as medium distinctiveness unless other data is available.
  - Landcover data, Centre for Ecology and Hydrology 2007. Priority habitats (principal importance) and semi-natural habitats coded as medium distinctiveness (data in Appendix 1)
  - Agricultural land classification, Natural England - grade 4 medium distinctiveness, grade 5 high distinctiveness (adjusted where other data is available).
  - Protected sites (Sites of Special Scientific Interest, Local Wildlife Sites and Local Nature Reserves), Natural England, CWT/CW&C Local Authority – coded as high distinctiveness.
  - Ancient woodlands – Natural England 2015 – coded as high distinctiveness.
  - Meres and Mosses and other peat soils, Meres and Mosses Landscape Partnership scheme, 2016. Functional Ecological Units, river valley peat and destroyed (historical) peat coded as medium distinctiveness. (Supporting information in Appendix 2.)
- Aerial photography (Microsoft Bing <sup>TM</sup> Imagery) was used to validate the results by eye.
- The Knutsford Neighbourhood Plan area Land Character Assessment and EConet categories were mapped and the results were used to inform the conclusions.
- Habitat data from recent planning applications in Knutsford were researched and incorporated where appropriate.

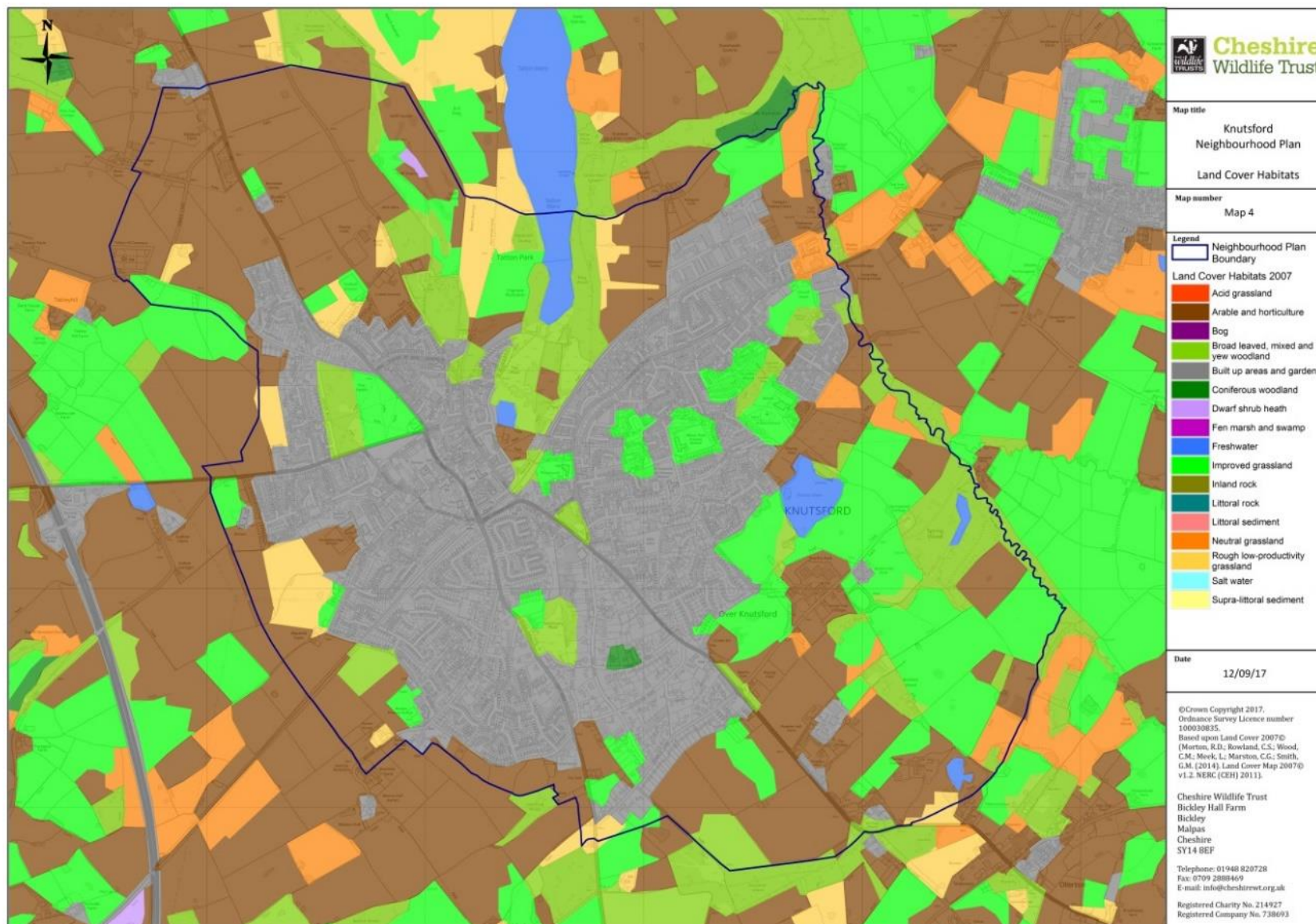


## Mapping

**Map 3: Terrestrial habitats of Principal Importance – Natural England 2014**

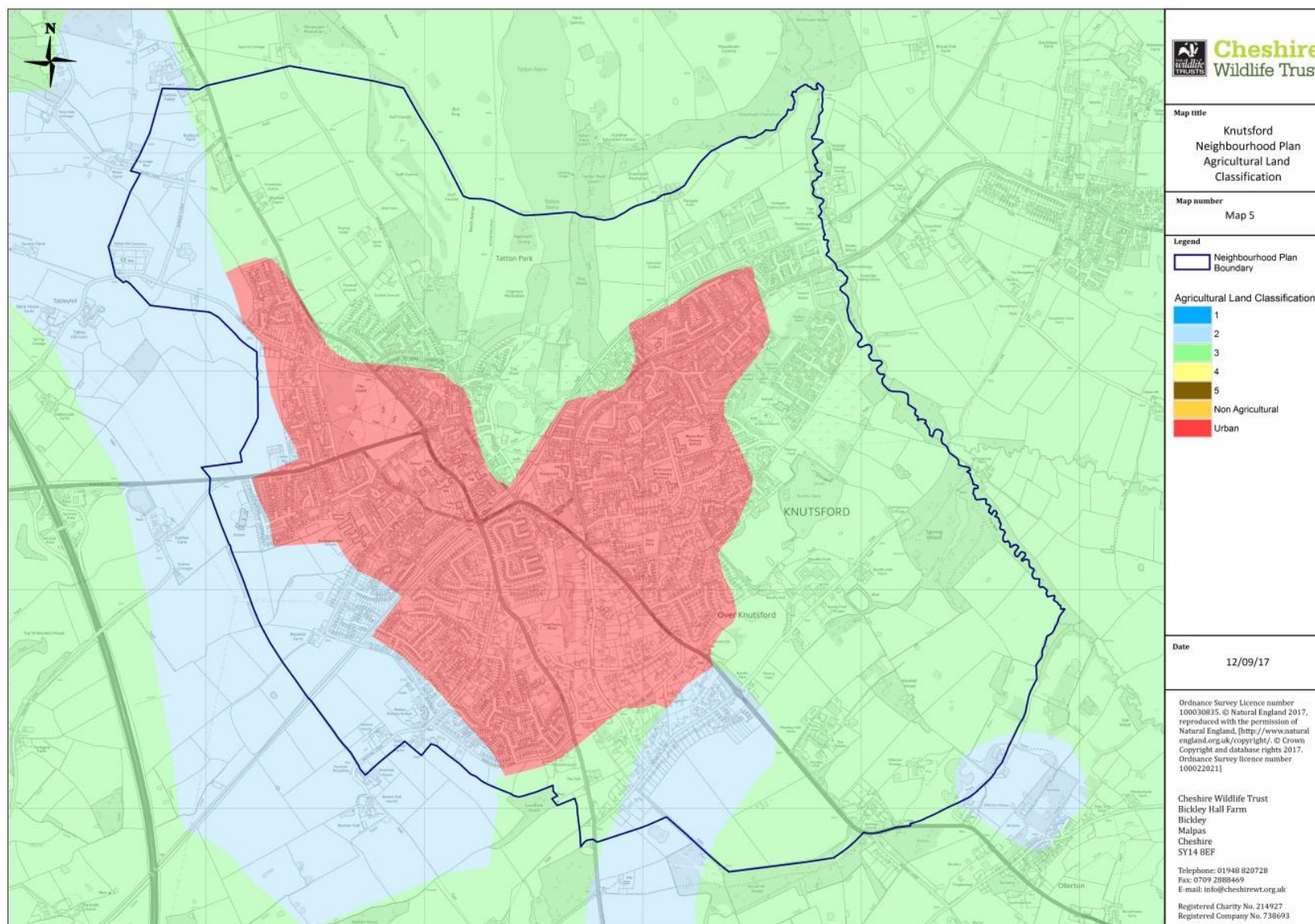


**Map 4: Land Cover Map 2007** (LCM2007) is a parcel-based classification of satellite image data showing land cover for the entire United Kingdom derived from a computer classification of satellite scenes obtained mainly from the Landsat sensor



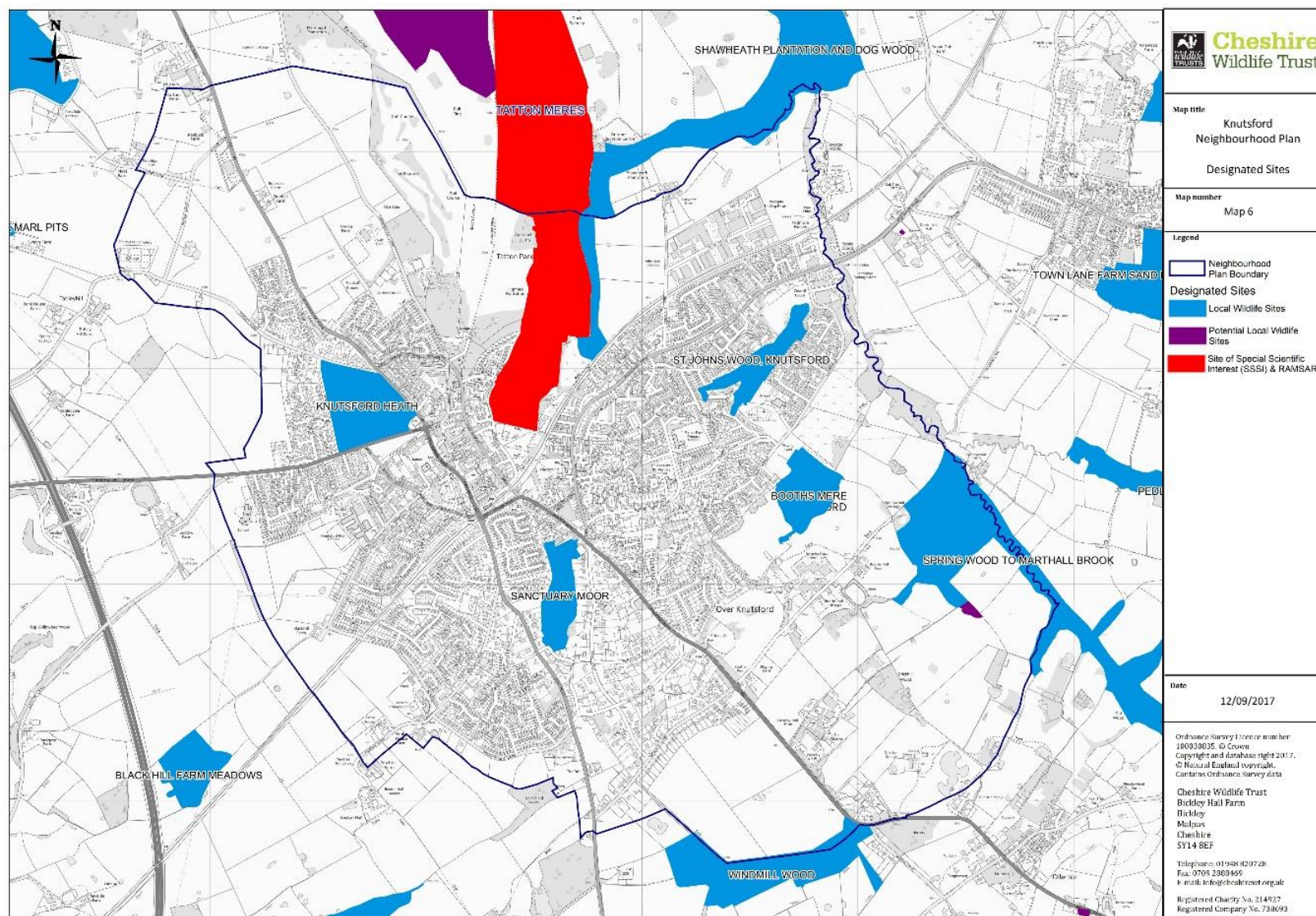


Map 5: Agricultural Land Grading – Natural England 2013



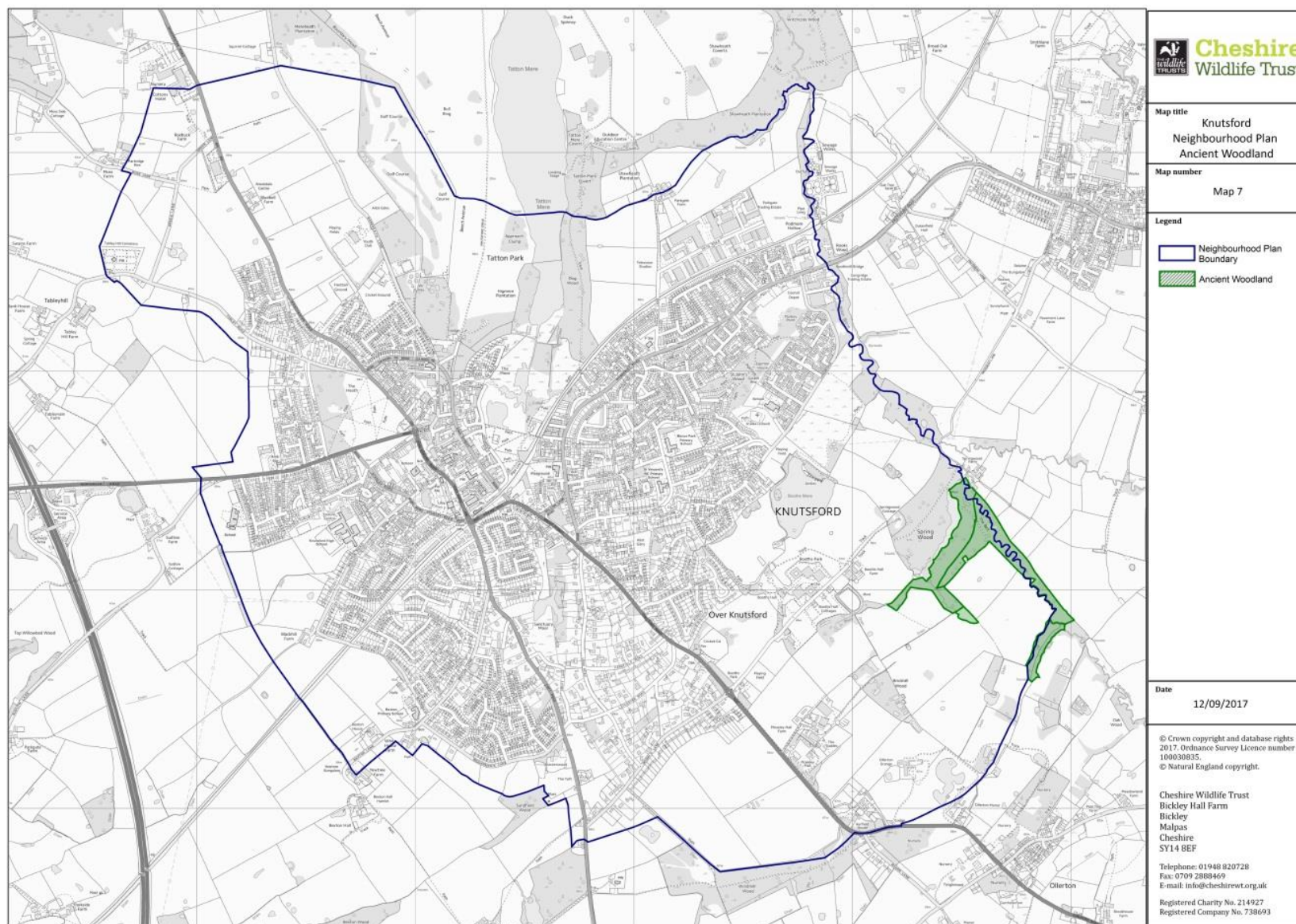


**Map 6: Nature Conservation Sites**, including designated Sites of Special Scientific Interest, Local Nature Reserves, European designated sites (SAC, SPA), Ramsar sites, Local Wildlife Sites and non-designated Potential Local Wildlife Sites

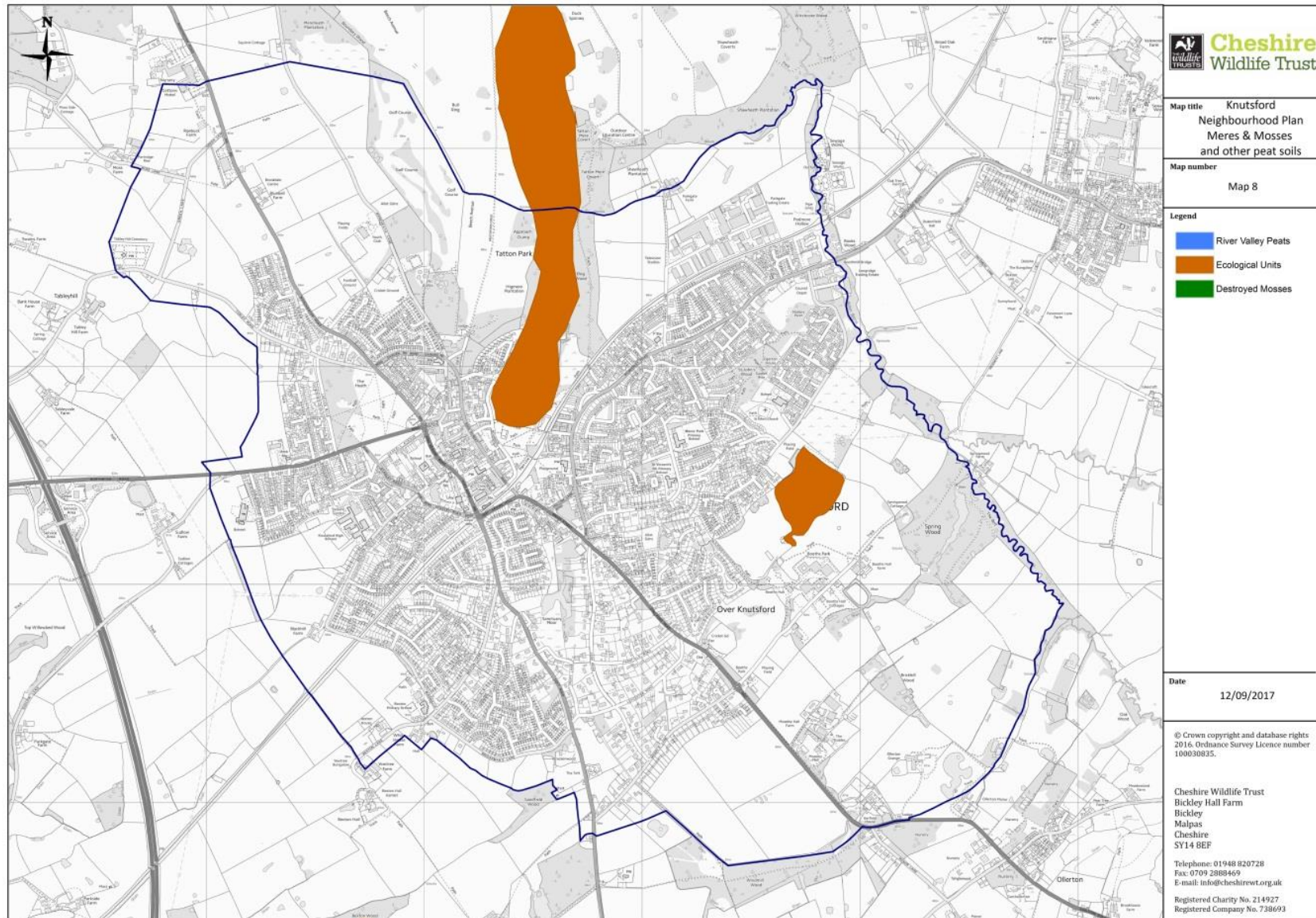




**Map 7: Ancient woodland – Natural England 2015**

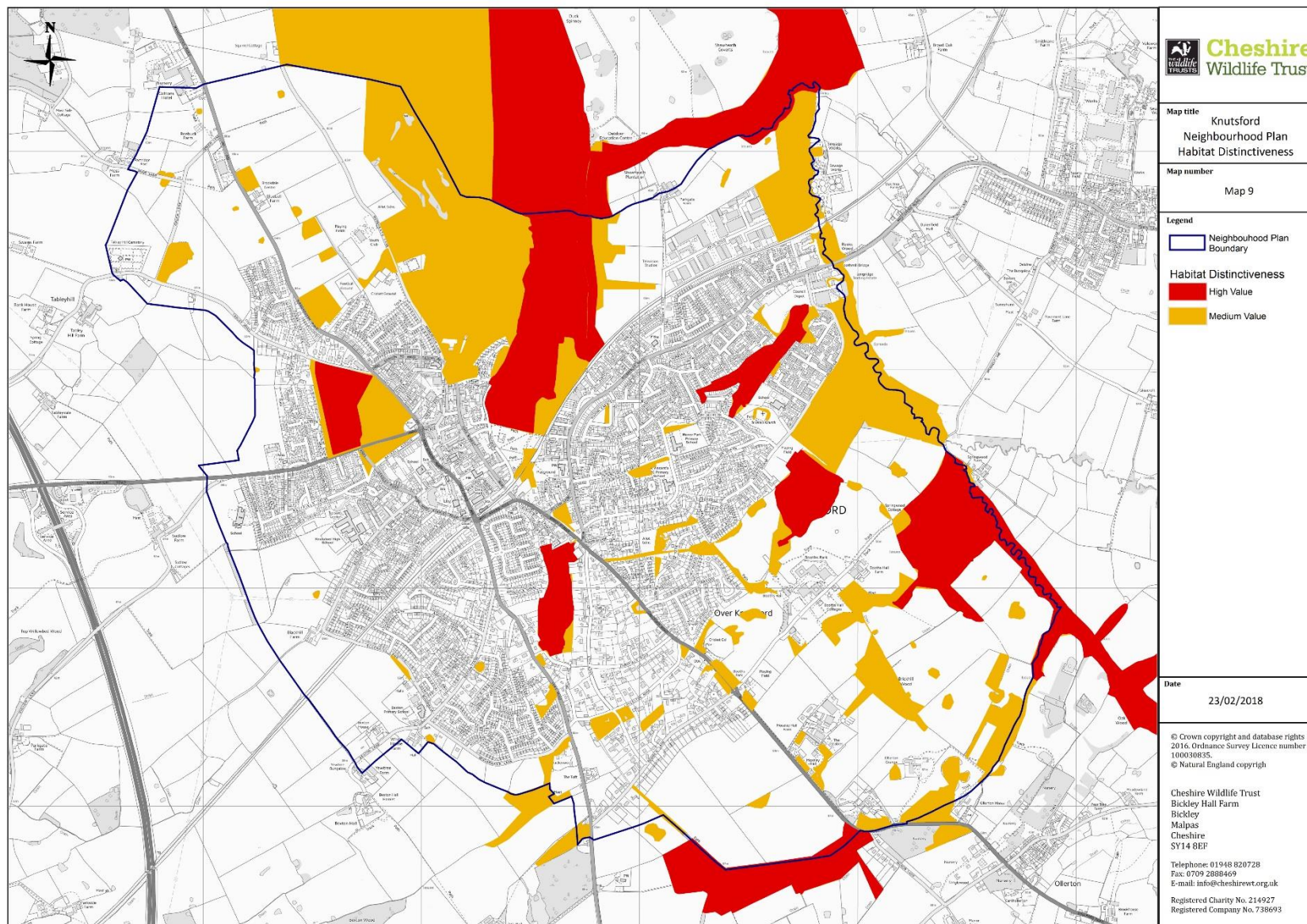


**Map 8: Meres and Mosses and other peat soils, Meres and Mosses Landscape Partnership Scheme 2016**



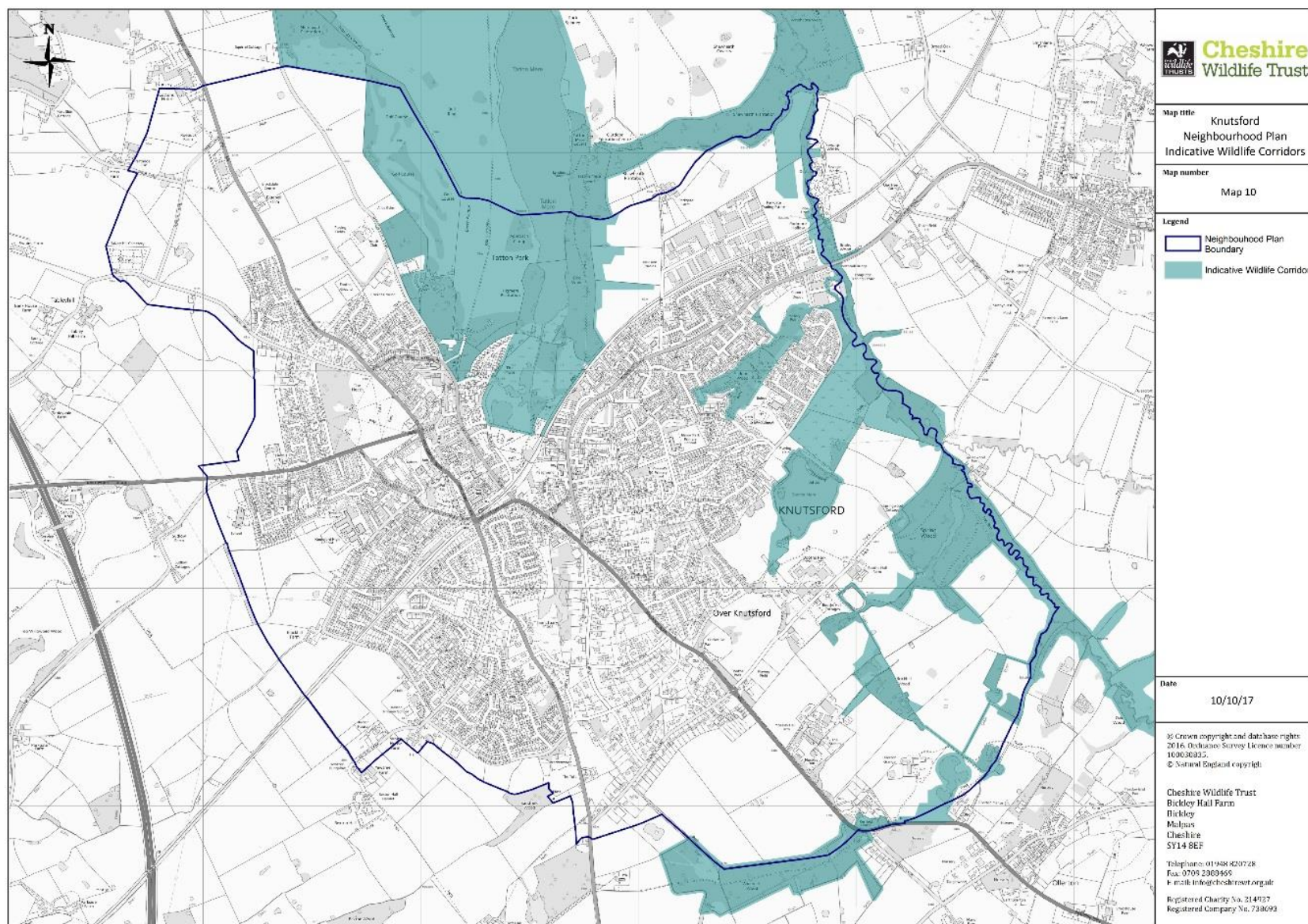


Map 9: Habitat Distinctiveness





**Map 10: Indicative Wildlife Corridor Network**



## *Results and discussion*

### *High distinctiveness habitat (habitat of Principal Importance)*

#### *1. Woodland*

Although most woodlands in Cheshire are fragmented and impoverished, the woodland along the eastern boundary of Knutsford is an exception with large areas of inter-connected wildlife-rich habitat. Some of this woodland is thought to be at least 400 years old and Spring Wood is listed on the ancient woodland inventory (Natural England 2015) and designated as a Local Wildlife Site. Spring Wood has a canopy of oak, ash and birch with a rowan, hawthorn and holly understorey. Ancient woodlands are considered irreplaceable habitats due to time taken for them to acquire their diverse flora and fauna and the indicator species are those that take hundreds of years to disperse.

St John's Wood is an ash, sycamore, wych elm dominated woodland in a small damp valley on the edge of the town. Although probably not ancient it appears on the 1875 maps and has a good diversity of native species including yellow pimpernel and sweet woodruff which is present in the south of the site. It is possible that this part of the wood is older than the rest. There are reportedly over 60 species of woodland fungi present. Despite it being largely surrounded by development it is an important site and is designated as a Local Wildlife Site; however wildlife at St John's Wood is vulnerable due to recreational pressures, littering and the impact that non-native species from adjacent gardens are having on the native biodiversity.

Windmill wood is a mixed plantation woodland with pockets of native broadleaved woodland with birch, oak holly and rowan and a good diversity of woodland fungi. Unfortunately invasive non-native rhododendron is present in more than 25% of the woodland the result of which is a diminished ground flora and limited general biodiversity.

Sanctuary Moor sits in a peaty depression south of Knutsford Moor and was very likely to have once been part of the glacial mere/fen complex to the north. The site is important for its wet alder/willow carr woodland with species such as the rare royal fern, ramsons, marsh marigold, reed sweet grass, meadowsweet and at least three species of peat forming sphagnum moss. Unfortunately there has been some damaging invasive non-native species planted around the edge including rhododendron, bamboo and cultivated arum.

Dogwood is a mosaic of different habitats with areas of mature plantation woodland and secondary sycamore woodland. There is a small area of mature semi-natural woodland towards the southern end. Although generally species poor there are certain areas that support extensive tracts of bluebells. Tatton Mere Covert is an area of mature plantation oak wood parkland that lies adjacent to the mere and Shawheath plantation is a strip of mixed plantation woodland that links Tatton Mere Covert with semi-natural native woodland at Witchcote wood to the north and to the Birkin Brook corridor to the north east.

The woodland in Knutsford moor on the edge of the central fen area is wet willow, birch and alder carr with drier oak-sycamore woodland on the periphery of the basin. At Knutsford Heath oak

woodland has developed over lowland heath and supports a number of bird species including red listed<sup>1</sup> song thrush.

The presence of high quality woodland in the Knutsford area means that the area is important for other notable or red listed birds including spotted flycatcher which has been recorded breeding in the locality. Rare hobby and kestrel (amber listed) have both been recorded in the vicinity of the woodlands, and whilst kestrel is thought to breed in the locality it is less likely (but possible) that hobby breed here. There are at least three species of breeding owl in the vicinity of the woodlands around Tatton Mere including tawny owl (amber listed), barn owl and little owl.

The semi-natural woodland in Knutsford is highly likely to support roosts of UK priority bat species which will forage for insect prey along the woodland edges, fens and waterbodies and along any intact hedgerows. Pipistrelle and Soprano pipistrelle bats have both been recorded in the Tatton Mere area.

The damp woodlands in the Knutsford area have a rich flora but unfortunately they also provide perfect conditions for the spread of the invasive non-native Himalayan balsam, which is present in abundance in the Knutsford Moor area and most likely along sections of Birkin Brook. This species is probably the biggest threat to the integrity of woodlands and wetlands as its vigorous growth means that native flora is outcompeted. This can have a devastating impact on the native flora and a knock on effect on groups of species such as birds, invertebrates and mammals. Himalayan balsam can also cause severe soil erosion issues when native flora that binds the soil disappears. This is particularly damaging to the banks of waterbodies causing soil to wash into the watercourses affecting the water quality.

## 2. *Watercourses*

Marthall brook runs in a northerly direction along the eastern boundary of Knutsford Parish turning into Birkin Brook at the point where it is joined by Pedley Brook. Marthall brook upstream of Spring Wood is a highly diverse complex of wetland, species-rich grassland and woodland. Oak Wood which lies outside the parish boundary is similar to Spring Wood but has extensive areas of wood anemone.

## 3. *Species-rich grasslands*

The Knutsford area also supports rare pockets of species-rich grassland, the fastest disappearing habitat in the UK. Most of these pockets are on steep slopes, by the edges of woodland or on the edges of the meres and streams. The species-rich neutral grassland on the grassy banks of the Marthall brook is particularly notable for butterflies and supports uncommon flora such as burnet saxifrage, adders tongue and dyer's greenweed. On the edge of Sanctuary Moor there are two areas of species rich grassland supporting species such as ragged robin, purple loosestrife, marsh cinquefoil and numerous sedges.

Although lying outside the parish boundary the old deer enclosure at Tatton Park is notable for having one of the largest expanses of unimproved acid grassland in the region (which is a designated

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<sup>1</sup> Birds of Conservation Concern 2017

Local Wildlife Site). There are also further areas of acid and marshy grassland to the west of the mere (highlighted as a potential Local Wildlife Site in map 6), although this is not as species rich as that in the old deer enclosure. There are also areas of flushed pastures fringing the two meres with species such as blinks, small sweet grass and greater birdsfoot trefoil

#### 4. *The Meres/fen*

The meres in the Knutsford parish and surroundings are notable for both their landscape qualities and their wildlife. Those at Tatton and Tabley originate from natural depressions in the glacial drift left by ice sheets when they receded approximately 15,000 years ago. Melchett mere developed as a result of subsidence caused by salt extraction, whereas Booths mere is thought to be an artificial pool created as part of a historical landscaping scheme at Booths Hall/Norbury Booths.

Tatton mere and Melchett mere (Tatton Meres) are a designated Site of Special Scientific Interest due to the well-developed aquatic flora, the fringing fen, flushed acidic grassland and adjacent woodland. The unusual assemblage submerged flora in Tatton mere include at least three different pondweeds, milfoils and crowfoots. The fen has county rarities such as cowbane and marsh fern and also supports populations of sedge warbler and reed warblers in the reedbeds at Knutsford Moor. The meres provide rich feeding grounds for sandmartins which feed in large numbers over the open water especially in early summer. There are also good assemblages of ducks and geese that are resident or visit in either the summer or winter months; these include gadwall, pintail, great crested grebe, pochard, teal, shoveller, goldeneye, tufted duck, coots and moorhens. There are at least three species of swan and around five species of geese. The surrounding parkland is important for snipe in the winter months with other notable species including kingfisher, reed buntings, grey wagtails, grasshopper warbler and rare breeding Cetti's warbler.

Boothsmere and its adjacent areas of rough grassland and woodland is much smaller than the Tatton mere complex but also supports notable winter wildfowl populations as well as an array of woodland birds and uncommon wetland flora such as cowbane and water avens

#### 5. *Heath*

A small area of heathland/acid grassland mosaic is present on sandy soils at Knutsford Heath. Although much reduced in size over the years there are remaining patches that support species such as heather, wavy hair grass and uncommon birdsfoot. These areas of the site are also notable for butterflies and grasshoppers. Although the heath was largely open at the beginning of the 20<sup>th</sup> century most of the site today is either oak, gorse and holly dominated woodland/scrub or semi-improved grassland.

#### *Medium distinctiveness habitat*

Areas of medium distinctiveness habitat are shown on map 9 (displayed as orange) and provide important wildlife habitats in their own right as well as acting as ecological stepping stones and corridors. Because the methodologies used to produce the maps are desk based rather than field survey based, there is a possibility that some of the medium distinctiveness areas have been

undervalued and an ecological survey may indicate they should be mapped as 'high distinctiveness' priority habitat (which would be displayed as red in map 9). Conversely there may be areas which have been overvalued, particularly if recent management has led to the deterioration of the habitat; in which case these areas should be removed from the habitat distinctiveness map.

Many of the 'medium distinctiveness' habitats identified in map 9 are thought to be semi-natural grassland, particularly on the less productive margins of the watercourses and some woodlands such as St John's Wood. Semi-natural grasslands are invaluable for wildlife as they can support large populations of invertebrates and mammals such as brown hare (which has been recorded to the south of Knutsford). Many local red listed farmland birds such as linnet, skylark and yellow wagtail (recorded to the west of Knutsford) will feed on insects that live in semi-natural grasslands. Over-wintering birds such as fieldfare and redwing (both BoCC red listed) are found in particularly high numbers in the Longridge area of Knutsford where they feed in open areas of semi-natural habitat.

There are extensive areas of arable farmland around Knutsford, which although not flagged up in the habitat distinctiveness maps may support breeding red-listed farmland birds. The area north and west of Knutsford (around Green Lane/Northwich Road) is particularly important for breeding lapwing (red listed and a species of Principal Importance) which must be taken into consideration if this area is ever developed.

The south east of Knutsford parish (around the Brickhill Wood area) has a fairly high density of field ponds which contributes to the permeability of the landscape for wildlife. Ponds have been highlighted as habitat of medium distinctiveness in map 9 and should always be retained where possible when land is developed. Where ponds are stocked with high numbers of fish the wildlife value is decreased. This is because introduced fish (such as bottom feeding non-native carp) can deplete the pond of invertebrate larvae and amphibian eggs/larvae as well as water plants. Despite this, even low value ponds can help increase landscape permeability for species such as birds and terrestrial invertebrates.

Scattered farmland/parkland trees such as those present near Booths mere and the hedgerow network also help with landscape permeability by providing habitat and a food source for declining farmland bird populations such as red listed house sparrow and yellowhammer and amber listed bullfinch which are all present in the wider area. Invertebrates and small mammals also inhabit hedgerows, particularly those with adjacent wide field margins as well as inhabiting areas of semi-improved grassland. The small mammal population supports birds such as barn owl which consequently do best in areas where the traditional farmland landscape is intact. Although the hedgerow network in Knutsford is generally very poor and fragmented there is one area around Brickhill Wood to the south east of Knutsford with a good hedgerow system. This is linked to the Marthall Brook corridor and is likely to be a very important area of the parish for birds as well as for foraging and commuting bats.

Several areas of woodland have been flagged up as medium distinctiveness but may well be high distinctiveness, these include Brickhill Wood and woodland south of Booths Hall Cottages. Other areas such as Approach Clump in Tatton Park and woodland opposite the sports pitches on

Mereheath Lane may have semi-natural elements but are likely to have originated from non-native plantings and could well fall into the low distinctiveness category due to low biodiversity.

### *Wildlife corridor network*

Wildlife corridors are a key component of local ecological networks as they provide connectivity between core areas of high wildlife value/distinctiveness enabling species to move between them to feed, disperse, migrate or reproduce. In conjunction with the results of the EConet analysis (2003), this study has identified a wildlife corridor network (shown in map 10) with ecological connectivity within and beyond the Knutsford Neighbourhood Planning area.

The corridor incorporates the high quality habitats at Tatton Park and the woodlands and watercourses that skirt the east and south of Knutsford parish. The corridor has good ecological connectivity along most of its length apart from several pinch points including where it is crossed by the railway line at Podmore Hollow and by Knutsford Road at Rooks Wood. The main A537 at Kerfield house will also provide a barrier to the passage of less mobile species and at St John's Wood connectivity is also fairly poor.

In the wider area Tatton Meres/Knutsford Moor is an integral part of a recognised migration highway for birds as they pass northwards from the fens at Sandbach northwards to Rostherne Mere National Nature Reserve and on up to the Lancashire Mosses and the Lake District.

### *Protection of the wildlife corridor and other high and medium distinctiveness habitat*

Map 10 incorporates an indicative boundary for the wildlife corridor network; however this is likely to require refinement following detailed survey work. The corridor should be wide enough to protect the valuable habitats identified in Map 9 and for this reason we have incorporated a 15 metre buffer zone around any high distinctiveness habitat. The buffer is necessary to help protect vulnerable habitat from factors such as light pollution and ground water pollution, predation by domestic pets, and invasive garden species if adjacent land is developed.

A 15m buffer zone is also appropriate for any land lying outside the corridor network that, following an ecological appraisal, is subsequently found to be high distinctiveness habitat of Principal Importance<sup>2</sup>. Any potential development proposals adjacent to a high distinctiveness habitat or a wildlife corridor should demonstrate substantial mitigation and avoidance measures to lessen impacts on wildlife. For example low spillage (bat/otter sensitive) lighting should be recommended for use on the outside of buildings or in car-parks and along pathways and watercourses. Surface drainage water from developed areas should always be directed away from sensitive areas due to the risk of pollution unless the source of the water is clean, such as rainwater collected from roofs. Sustainable Drainage Schemes (SuDS) are useful in providing additional wildlife habitat and

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<sup>2</sup> This may currently be mapped as medium distinctiveness due to lack of information.



preventing flooding, but they may still hold polluted water so should not drain directly into existing wildlife habitat unless the filtration system is extensive.

As detailed above not all sections of the wildlife corridor provide high quality habitat and measures to improve the ability of the corridor to support the movement of species is desirable<sup>3</sup>. Enhancement of the corridor may be facilitated by opportunities arising through the planning process (e.g. S106 agreements, biodiversity offsetting/compensation) or through the aspirations of the local community.

In addition to the 'wildlife corridor network' this study has identified further areas of high or medium 'habitat distinctiveness' (Map 9) which, although sit outside the wildlife corridor network, nevertheless may provide important wildlife habitats acting as ecological stepping stones. These areas comprise semi-natural/species-rich grassland, ponds and semi-natural woodlands.

The network of field boundary hedgerows provides habitat connectivity between high distinctiveness areas, which would otherwise be separated by extensive areas of land predominantly of low habitat distinctiveness with restricted potential for wildlife to disperse. Although not identified as a key component of Knutsford ecological network, collectively, these hedgerows provide some degree of linear connectivity particularly through the south east of the neighbourhood and beyond. In addition to their intrinsic ecological value a good hedgerow network also adds to the landscape character value.

Old meadows and pastures supporting species-rich grassland are the fastest disappearing habitats in the UK. These grasslands are particularly important for pollinating insects and insectivorous birds and mammals. It is extremely important that the highlighted 'medium distinctiveness' areas should be thoroughly evaluated in the development control process. If they are found to support species-rich grassland they should be re-classified as 'high distinctiveness' (Habitat of Principal Importance) and there is a presumption that they should not be built on (as stipulated in the Local Plan and the NPPF). In order to achieve no 'net loss' in biodiversity, compensation may be required should these areas be lost to development when avoidance and mitigation strategies have been applied in line with the guidance set out in the National Planning Policy Framework.

## Conclusion

This study has highlighted that the important wildlife habitat in Knutsford is mainly associated with the meres and their fringing habitats as well as the native woodlands and species-rich grasslands along the Birkin and Marthall Brooks (riparian habitats). By attributing habitat distinctiveness values to all land parcels in the Neighbourhood Plan area the study has provided important evidence that should be taken into consideration when planning decisions are made. However we strongly recommend that further (phase 1) habitat survey work is undertaken at the appropriate time of year, in particular to verify that 'medium value' habitats have not been over or under-valued.

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<sup>3</sup> Refer to Recommendations section



Most notably the study has highlighted a 'wildlife corridor network' which provides ecological connectivity between the meres, fringing wetlands, woodland and grasslands within and beyond the Neighbourhood Planning area. The wildlife corridor network supports a wide range of species including numerous birds, plants, mammals, and invertebrates that are in decline both locally and nationally. Some of the most notable are the rare plant species such as cowbane, sweet woodruff, adders tongue, dyer's green weed and water avens. Rare birds such as hobby and Cetti's warbler are important, as are the bird species which are declining fastest such as grasshopper warbler, lapwing, house sparrow, grey wagtail, linnet, yellow wagtail, spotted flycatcher, thrushes, starling, tree pipit, pochard and fast declining overwintering birds such as fieldfare and redwing.

We recommend that the corridor network shown in map 10 is identified in the Neighbourhood Plan and protected from development so that the guidance relating to ecological networks set out in the NPPF (paragraphs 114 and 117) may be implemented at a local level. The wildlife corridor network includes a buffer zone of up to 15 metres in places to protect the notable habitats shown in map 9. If new areas of high distinctiveness habitat are subsequently identified these should also be protected by a 15 metre non-developable buffer zone.

Any future development of sites which lie adjacent to high distinctiveness habitat or a wildlife corridor should be able to demonstrate substantial mitigation and avoidance measures to lessen any potential impacts on wildlife. An example of this is that bat sensitive lighting could be recommended for use on the outside of buildings or in carparks/pathways, and otter sensitive lighting in areas adjacent to the Birkin and Marthall Brooks and their tributaries. Surface drainage water from developed areas should always be directed away from sensitive areas due to the risk of pollution.

To summarise, future development of Knutsford should respect the natural environment. The most intact landscapes, in terms of biodiversity, landform and historical/cultural associations should be valued highly when planning decisions are made. Protection and enhancement of Knutsford's natural assets is of crucial importance for nature conservation and ecosystem services but it is also important for the enjoyment of future generations.

## *Recommendations for improving and protecting habitat in order to create a coherent ecological network*

Following adoption of the neighbourhood plan, CWT advises that the following recommendations should be actioned:

### **1. Improve the quality of the ‘wildlife corridor network’ and assess against Local Wildlife Site selection criteria**

The areas highlighted as ‘wildlife corridor network’ in Map 10 incorporate 5 designated Local Wildlife Sites and the Tatton Meres SSSI/Ramsar, however it is highly likely that other land would meet also the criteria for Local Wildlife Site selection. These areas should be designated if the selection criteria are met, as LWS designation is likely to provide a greater level of protection within the planning system.

The wildlife corridor network should be in ‘favourable condition’<sup>4</sup> to provide breeding, foraging and commuting habitat for the native species that live there and native species which may subsequently colonise. Ideally these areas should be surveyed by a qualified ecologist to identify management priorities.

Management work may include:

- Control of Himalayan balsam, Japanese Knotweed and Giant hogweed (all present at Knutsford Moor): It is extremely important that these species are prevented from further colonisation of the woodlands and wetlands in the Knutsford area. These species are highly invasive and out-compete native flora. They can also cause soil erosion due to the lack of binding vegetation in winter (particularly on slopes). All three are listed on Schedule 9 of the Wildlife and Countryside Act 1981 which means it is an offence to plant or otherwise cause to grow in the wild. CWT can provide further advice on the control of this and other non-native species.
- Control of non-native/garden species in woodland. Garden species such as non-native daffodils, Spanish/hybrid bluebells, monbretia, cotoneaster and variegated yellow archangel and can all be highly invasive and damage the ecological balance of woodlands. The latter three are all listed on schedule 9 of the Wildlife and Countryside Act. Providing information to homeowners that back onto woodlands (particularly St John’s Wood) that highlights the importance of disposing of garden waste appropriately would be desirable.
- Hedgerows that form part of the wildlife corridor should be restored using locally native species such as wych elm, hawthorn, blackthorn, hazel and holly (plant 60-90cm high ‘whips’ which have a good rate of survival and use tree guards to protect from rabbits and stock fence where necessary). New sections of hedgerow should ideally incorporate a tree every 30m (on average) which are demarked so as not to be inadvertently flailed.
- All semi-natural grassland should be cut or grazed each year to maintain its wildlife value.

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<sup>4</sup> The definition of ‘favourable condition’ for Local Wildlife Sites is provided in Appendix 3

- Areas of lowland heath should be managed in the long term by controlling tree and scrub cover (professional advice should be sought first).
- Ensuring watercourses are buffered by semi-natural habitat to provide riparian habitat and help prevent pollution runoff.

## **2. Protect, enhance and connect areas of high/medium value which lie outside the wildlife corridor**

Opportunities should be explored to restore or create more wildlife friendly habitat especially where connectivity with other areas of valuable habitat can be achieved or where valuable sites can be buffered. Larger areas of better connected habitat support larger and healthier species populations and help prevent local extinctions.

Ways to enhance connections or to buffer sites could include the restoration of hedgerows, creation of low maintenance field margins and sowing locally sourced (local genetic stock) wildflower meadows<sup>5</sup>.

Woodland expansion is desirable to buffer existing woodlands, but may be of limited value if new plantations are isolated from existing woodland due to slow colonisation by woodland species. It is vitally important that tree planting should only occur on species-poor (low value) habitats and away from the edges of watercourses including ditches and ponds. Professional advice should always be sought when creating new habitat particularly when designing the layout, position and composition of new woodland and how to use local woodlands as a 'reference'. Well-designed new woodlands contain up to 40% open space (glades and rides) and up to 25% shrub species. For maximum benefit to biodiversity rides should be east-west oriented (so that sunlight is maximised) and at least 30 metres wide to avoid over-shading when the canopy closes. It is recommended that trees and shrubs should be sourced from the Forestry Commission seed zone or from seed collected from local stands or from the local seed zone (collections should be made under the Voluntary Scheme for Certification of Native Trees and Shrubs, endorsed by the Forestry Commission).

## **3. Protect existing hedgerow network**

Hedgerows which meet certain criteria are protected by *The Hedgerow Regulations, 1997*. Under the regulations it is against the law to remove or destroy 'Important' hedgerows without permission from the Local Planning Authority. Removal of a hedgerow in contravention of *The Hedgerow Regulations* is a criminal offence. The criteria used to assess hedgerows relate to its value from an archaeological, historical, landscape or wildlife perspective. The regulations exclude hedgerows that have been in existence for less than 30 years, garden hedges and some hedgerows which are less than 20 metres in length. The aim of the regulations is to protect 'Important' hedgerows in the countryside by controlling their removal through a system of notification.

Any proposals that involve the removal of hedgerows or sections of hedgerows or their associated features (e.g. ditches, banks, standard trees) should be supported by an assessment to ascertain

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<sup>5</sup> Cheshire Wildlife Trust can provide advice and seeds for locally sourced wildflower meadow creation.

their status in relation to *The Hedgerow Regulations*. Should the Local Planning Authority grant permission for removal, compensatory hedgerows should be provided.

Guidance issued by DEFRA relating to biodiversity offsetting requires 'multipliers' to be applied according to the condition of any native hedgerow to be lost: 'Poor' condition hedgerows should be compensated for using a multiplier of x1 (i.e. like-for like length), 'Moderate' condition hedgerows should be compensated for using a multiplier of x2, and 'Good' condition hedgerows should be compensated for using a multiplier of x3 (e.g. loss of 10m of hedgerow in 'Good' condition would require 30m to be planted in compensation).

Hedgerow condition assessment criteria are provided in the Natural England Higher Level Stewardship Farm Environment Plan Manual (2010), however, in brief, three condition assessments are made: average height before flailing is at least 2m; average width before flailing is at least 1.5m; less than 10% gaps, excluding gate holes and gaps beneath tree canopy. Native hedgerows meeting all three criteria are in 'Good' condition, those meeting any two criteria are in 'Moderate' condition, and those meeting no criteria are in 'Poor' condition.

Any new sections of hedgerow should be created following the guidance provided above (point 1).

#### **4. Phase 1 habitat mapping**

It is strongly recommended that Knutsford Neighbourhood Planning area is phase 1 habitat mapped. This will provide a high level of habitat detail and could be used to verify the results of the habitat distinctiveness mapping (map 9). Phase 1 mapping may identify further areas of medium or high distinctiveness (Priority) habitat not identified by this assessment. Areas identified as having medium value habitat in this report should be targeted for survey as a priority. Phase 1 mapping should also be used to determine the exact position of the wildlife corridor network.

## Appendices

### Appendix 1

#### Habitats, LCM2007 classes<sup>6</sup> and Broad Habitat subclasses for LCM2007 CEH

LCM2007 class	LCM2007 class number	Broad Habitat sub-class	Broad habitat sub-class code	Habitat Score
<b>Broadleaved woodland</b>	1	Deciduous	D	Medium
		Recent (<10yrs)	Dn	Medium
		Mixed	M	Medium
		Scrub	Sc	Medium
<b>‘Coniferous Woodland’</b>	2	Conifer	C	Low
		Larch	Cl	Low
		Recent (<10yrs)	Cn	Low
		Evergreen	E	Low/Medium
		Felled	Fd	Medium
<b>‘Arable and Horticulture’</b>	3	Arable bare	Aba	Low
		Arable Unknown	Aun	Low
		Unknown non-cereal	Aun	Low
		Orchard	O	Medium

<sup>6</sup> No habitat scores higher than ‘medium distinctiveness’ due to the reliability of the data

		Arable barley	Aba	Low
		Arable wheat	Aw	Low
		Arable stubble	Ast	Low
<b>Improved Grassland'</b>	4	Improved grassland	Gi	Low
		Ley	Gl	Low
		Hay	Gh	Low
<b>Rough Grassland</b>	5	Rough / unmanaged grassland	Gr	Medium
<b>'Neutral Grassland'</b>	6	Neutral	Gn	Medium
<b>'Calcareous Grassland'</b>	7	Calcareous	Gc	Medium
<b>Acid Grassland</b>	8	Acid	Ga	Medium
		Bracken	Br	Medium
<b>'Fen, Marsh and Swamp'</b>	9	Fen / swamp	F	Medium
<b>Heather</b>	10	Heather & dwarf shrub	H	Medium
		Burnt heather	Hb	Medium
		Gorse	Hg	Medium
		Dry heath	Hd	Medium
<b>Heather grassland</b>	11	Heather grass	Hga	Medium

<b>‘Bog’</b>	12	Bog	Bo	Medium
		Blanket bog	Bb	Medium
		Bog (Grass dom.)	Bg	Medium
		Bog (Heather dom.)	Bh	Medium
<b>‘Montane Habitats’</b>	13	Montane habitats	Z	Medium
<b>Inland Rock’</b>	14	Inland rock	lb	Medium
		Despoiled land	Ud	Medium
<b>Salt water</b>	15	Water sea	Ws	Medium
		Water estuary	We	Medium
<b>Freshwater</b>	16	Water flooded	Wf	Medium
		Water lake	Wl	Medium
		Water River	Wr	Medium
<b>‘Supra-littoral Rock’</b>	17	Supra littoral rocks	Sr	Medium?
<b>‘Supra-littoral Sediment’</b>	18	Sand dune	Sd	Medium
		Sand dune with shrubs	Sds	Medium
		Shingle	Sh	Medium?
		Shingle vegetated	Shv	Medium
<b>‘Littoral Rock’</b>	19	Littoral rock	Lr	Medium
		Littoral rock / algae	Lra	Medium

<b>Littoral sediment</b>	20	Littoral mud	Lm	Medium
		Littoral mud / algae	Lma	Medium
		Littoral sand	Ls	Medium
<b>Saltmarsh</b>	21	Saltmarsh	Sm	Medium
		Saltmarsh grazing	Smg	Medium
<b>Urban</b>	22	Bare	Ba	Low
		Urban	U	Low
		Urban industrial	Ui	Low
<b>Suburban</b>	23	Urban suburban	Us	Low



## Appendix 2

### Meres & Mosses LPS / NIA: Methodology for Mapping Extant Meres & Mosses

The mapping of 'Functional Ecological Units' is primarily based on topography, with use being made of lidar data. Lidar is a remote sensing technique whereby an airborne survey using lasers generates detailed topographic data (known as a Digital Terrain Model (DTM)). With approximately 70% coverage of the Meres & Mosses landscape.

Mapping of the Functional Ecological Units (FEUs) started with the identification of extant sites:-

- 1) All designated sites, SSSIs and County (Local) Wildlife Sites, that are either a mere or a moss were included.
- 2) Beyond the designated sites, use was made of a detailed peat soils map for the area. From this dataset a distinction was made between likely moss peats and extensive areas of likely fen peat associated with some of the river valleys. The moss peat sites were then reviewed using aerial photography and divided into two categories: destroyed and de-graded. The former are sites under arable, intensive grassland or other land use, where any relict habitat, and potentially even the peat itself, have been lost – these were excluded. The de-graded sites are those supporting some form of relict habitat (e.g. extensive grassland, rush pasture or woodland) offering potential for restoration – these were taken forward as FEUs.
- 3) Finally the 1:10,000 scale OS base map was scanned for names alluding to meres and mosses. All waterbodies specifically called "Mere" were included in the mapping, but sites with names suggestive of meres (e.g. Black Lake) were ignored. A few sites were identified called "Moss" – however, because these were not shown on the peat soils map, these were excluded.

For each potential FEU the lidar data was manipulated to show land within a nominal 3 metres elevation of the lowest point on the site. The FEU was then defined as the obvious basin around the lowest point – i.e. the land where it should be possible to restore hydrological function and therefore a wetland habitat mosaic (generally a nominal 1.0 - 1.5 metres above the lowest point on the site). Where no lidar data was available, the likely boundary of the FEU was estimated from the peat soils data and aerial photography.

### *Appendix 3*

In order for a Local Wildlife Site to be recorded as in positive management all four of the following should be met:

- The conservation features for which the site has been selected are clearly documented.
- There is documented evidence of a management plan/management scheme/advisory document which is sufficiently targeted to maintain or enhance the above features.
- The management requirements set out in the document are being met sufficiently in order to maintain the above features. This should be assessed at 5 year intervals (minimum) and recorded 'not known' if the interval is greater than 5 years.
- The Local Sites Partnership has verified the above evidence.