

# Protecting and Enhancing Hankelow's Natural Environment



**Cheshire**  
Wildlife Trust

May 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 Hankelow, 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 Hankelow 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*

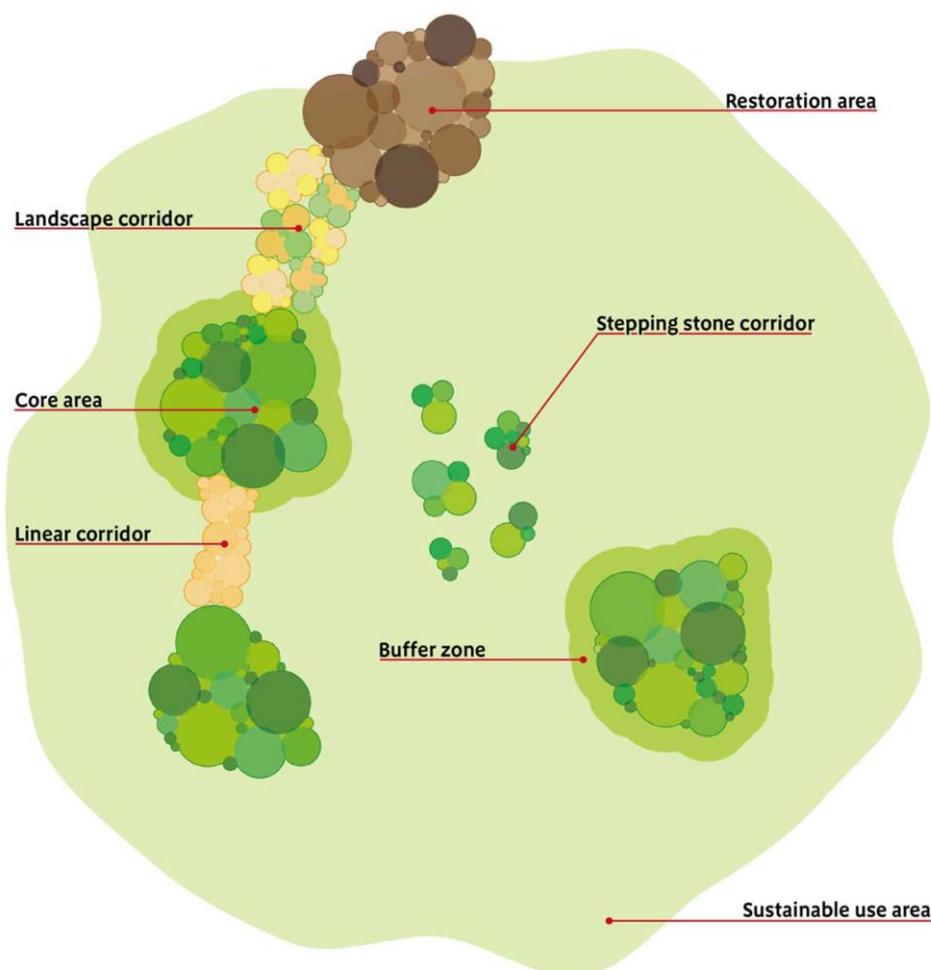
These are areas where measures are planned to restore or create new high value areas (which will ultimately become ‘core areas’) so that ecological functions and species populations can be restored. They are often situated so as to complement, connect or enhance existing core areas.

- *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.

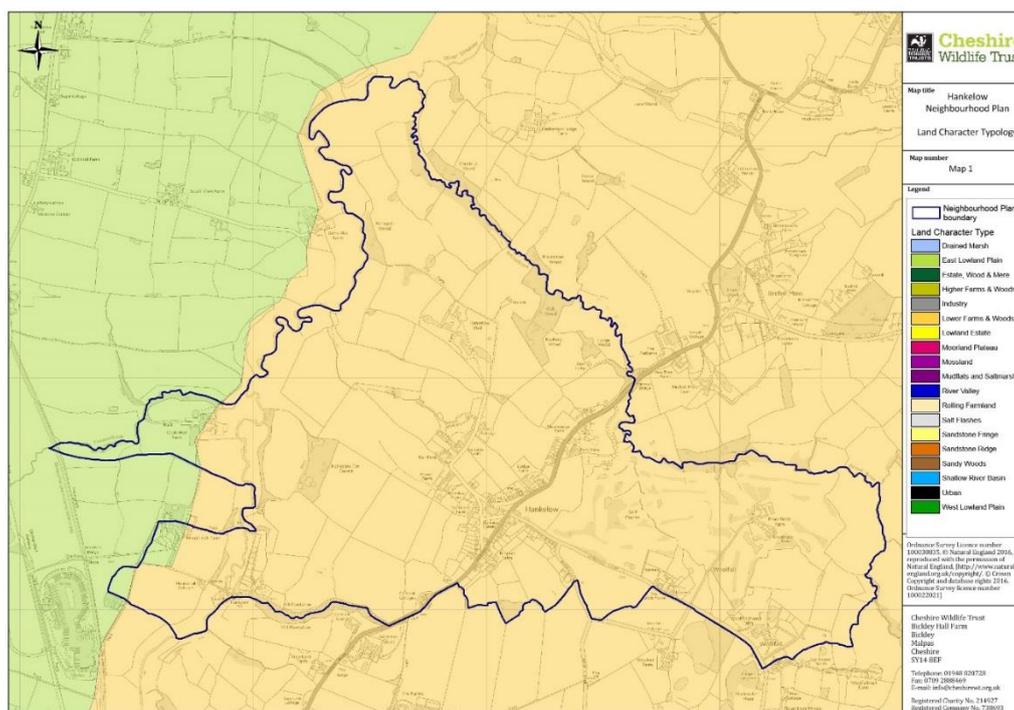
The National Planning and Policy Framework published in 2012 also includes the establishment and conservation of a coherent ecological network as a core principle including:

- 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 Hankelow 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 Hankelow Neighbourhood planning area; namely East Lowland Plain and Lower Farms and Woods, the latter of which is the predominant character type. These character types are further refined and subdivided into Landscape Character Areas (LCAs):

### **Type 7 - East Lowland Plain** Subtype *ELP1*

Key Characteristics of type 7

- Flat and almost flat topography
- Small to medium sized fields up to 8ha used for pasture and arable farming.
- Mainly hawthorn hedgerows and hedgerow trees, some mixed species hedgerows
- Dispersed hamlets and farms with predominantly low density and some nucleation
- Intensive farming and large farm businesses
- Large number of small water bodies
- Scattered species rich grasslands
- Riparian ancient woodlands and field sized coverts.
- Medieval moated sites

Subtype *ELP1: Ravensmoor Character Area (LCA)*

The western extents of Hankelow Neighbourhood Planning area lie within this character area which is essentially a large area of flat agricultural plain.

The Ravensmoor Character Area subtype has a mixture of irregular and regular fields and grid like patches of enclosure. The irregular fields are pre-medieval in origin and normally bounded by hawthorn hedges, often with standard trees. Many fields have been enlarged through the removal of boundary hedges giving a sense of openness occasionally with panoramic views.

Towards the south and west of the Ravensmoor Character Area subtype there are smaller fields, abundant hedges and hedgerow trees and the landscape is more enclosed and has a tranquil, rural character.

### **Type 10 - Lower Farms and Woods** Subtype *LFW4*

Key characteristics of Type 10:

- 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

#### *Subtype LFW4: Audlem Character Area (LCA)*

Lying in the far south of Cheshire and bordering Staffordshire, the Audlem character area (which incorporates Hankelow) is very rural. The dispersed settlements are connected by quiet country lanes giving the impression of isolation. The countryside is gently undulating but cut through by numerous steep sided streams often fringed with ancient woodland, particularly towards the south of the area.

#### *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.

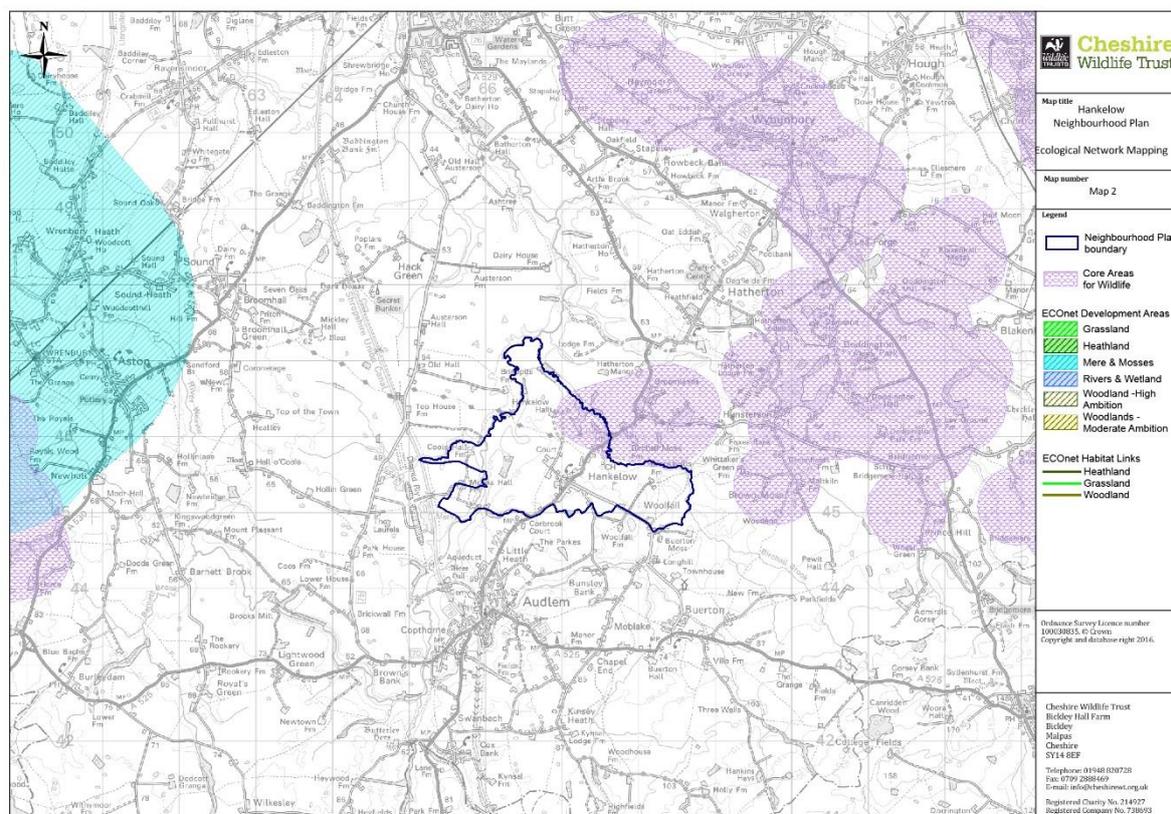
#### *ECONet – Integrated vision of the Cheshire County Ecological Network*

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 Hankelow Neighbourhood Plan.

## Map 2: Ecological Network Mapping (EONet)



EONet identified Rookery, Blackthorn and Oak woods as part of a core area for nature conservation which is centred on Birchall Moss. Core areas (shaded purple) are considered fundamental components of the county wide ecological network.

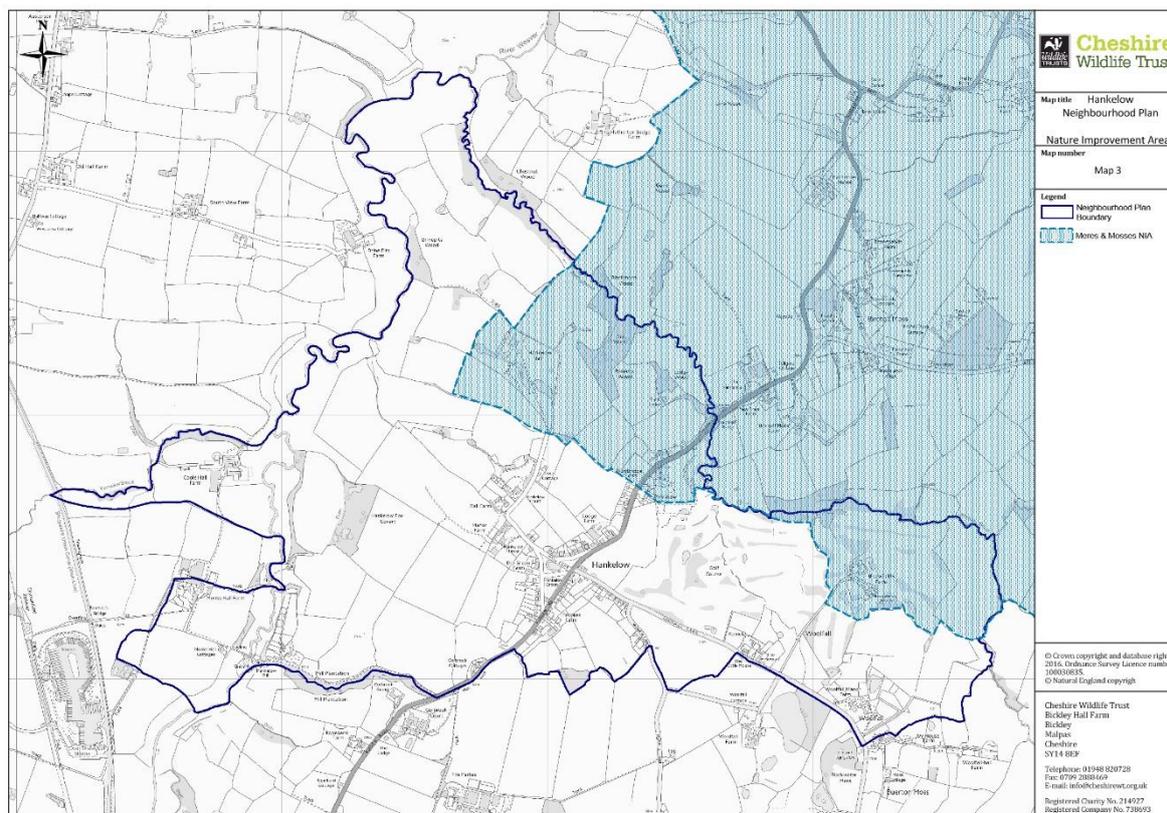
### *Meres and Mosses Nature Improvement Area*

Rookery, Blackthorn and Oak Woods and habitats in the vicinity of Hankelow Hall, Birchall Bridge and Brookfields Farm lie within the Meres and Mosses Nature Improvement Area. Twelve Nature Improvement Areas (NIAs) were identified by the coalition government in 2012 as a key mechanism for restoring the natural environment by creating resilient ecological networks across administrative boundaries to benefit people and wildlife. NIAs also help address species loss, water quality and flood risk management, providing a focussed area in which to coordinate delivery mechanisms, policies and funding to influence the way land is used and managed.

The Meres and Mosses NIA is part of a wider post-glacial landscape which forms one of the most important wetland areas in England. When the ice retreated 10,000 years ago it left behind a landscape pitted with water filled hollows (kettles) across the plains of Cheshire, north Shropshire, north Staffordshire and parts of north Wales. All of the region's true meres and some of its ponds are kettles that date back to the end of the last ice age. Many of the shallower kettles became filled

with swampy vegetation and over the millennia peat accumulated to form either basin mires or raised sphagnum moss bogs, fed by rainwater.

More recently many of these mosslands and the surrounding agricultural land have been artificially drained, lowering the water-table causing the peat to dry out. Pollution from the influx of fertiliser contaminated water, as well as peat cutting, have left many of the sites in an impoverished state. Many relict mosslands are now covered in trees and no longer support the specialised wetland flora and fauna that they once did. The Meres and Mosses NIA was set up to help address these issues and to restore the wetland wildlife of this historic landscape.



## 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:

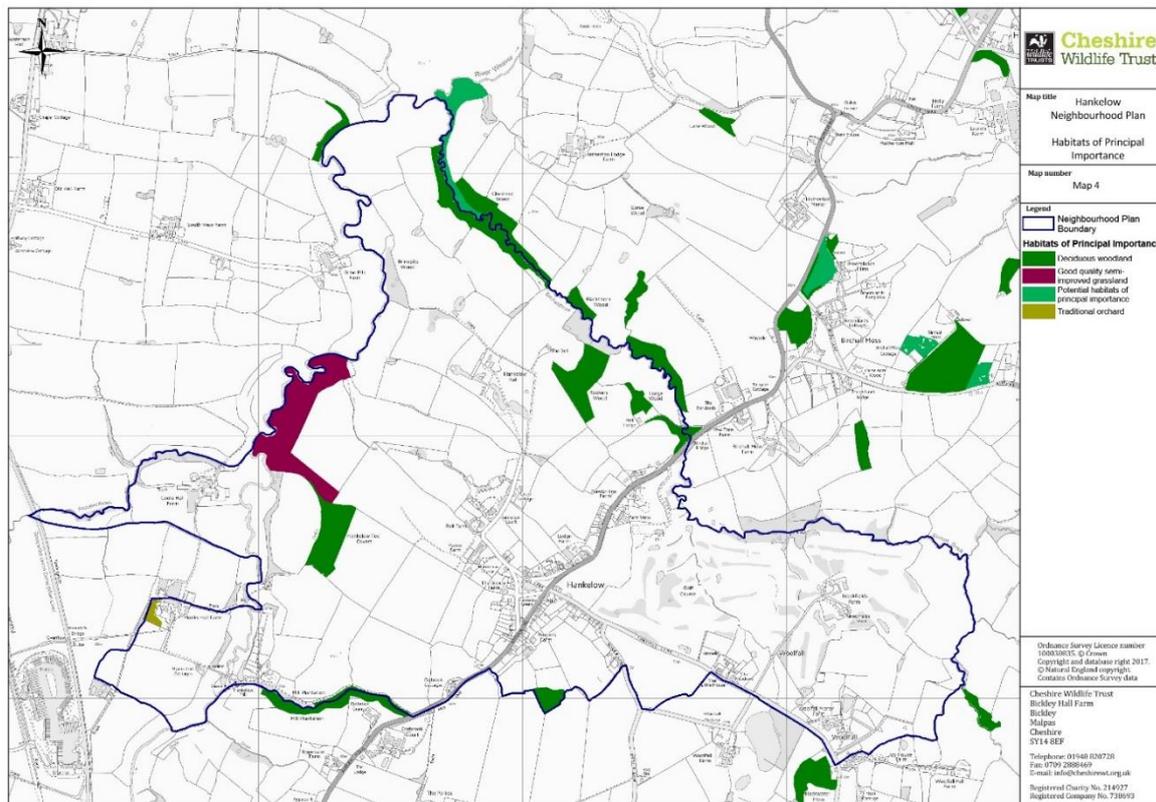
Habitat type band	Distinctiveness	Broad habitat type covered	Colour on map
High ecological value	High	Priority habitat as defined in section 41 of the NERC Act, Designated nature conservation sites (statutory and non-statutory)	Red
Medium ecological value	Medium	Semi-natural habitats and habitats with 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)

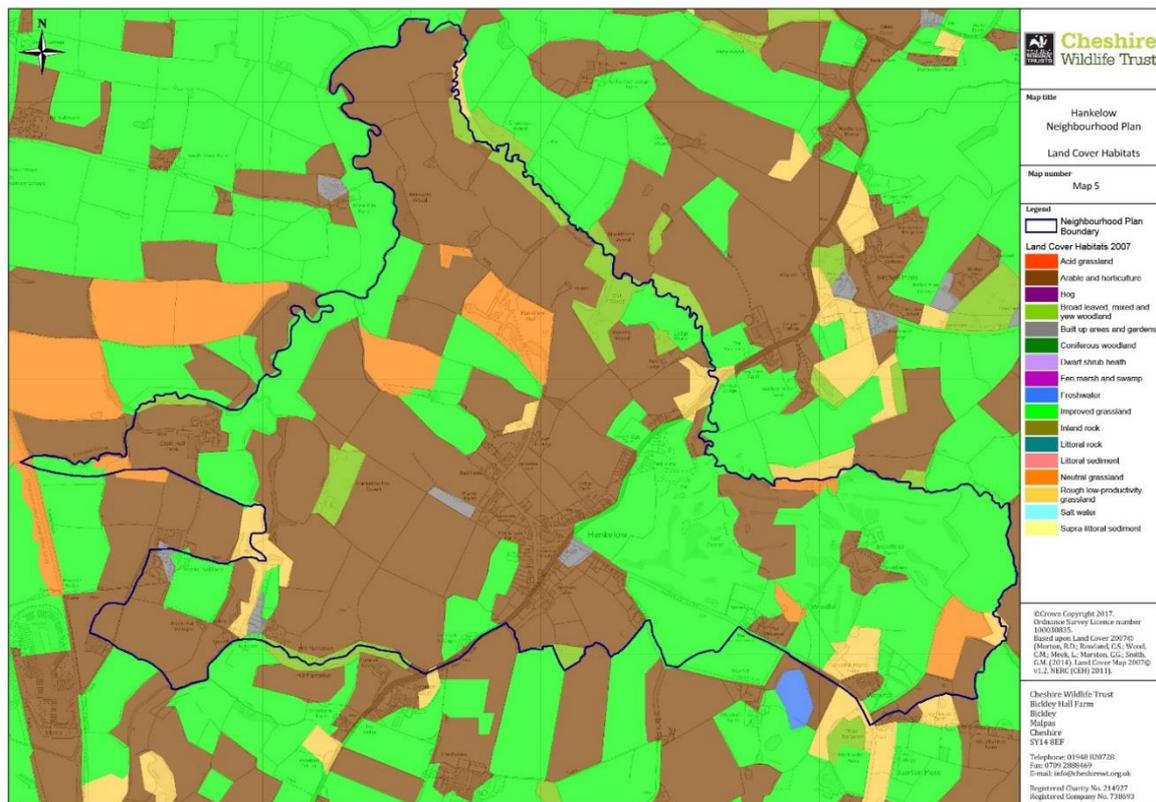
- Several published data sets were used to produce the habitat distinctiveness maps:
  - Priority habitat Natural England – High/medium confidence coded as high distinctiveness, and low confidence coded as medium distinctiveness unless other data is available.
  - Landcover data, Centre for Ecology and 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/CE 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™ Imagery) was used to validate the results by eye.
- The Hankelow 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 has been incorporated where appropriate.

Mapping

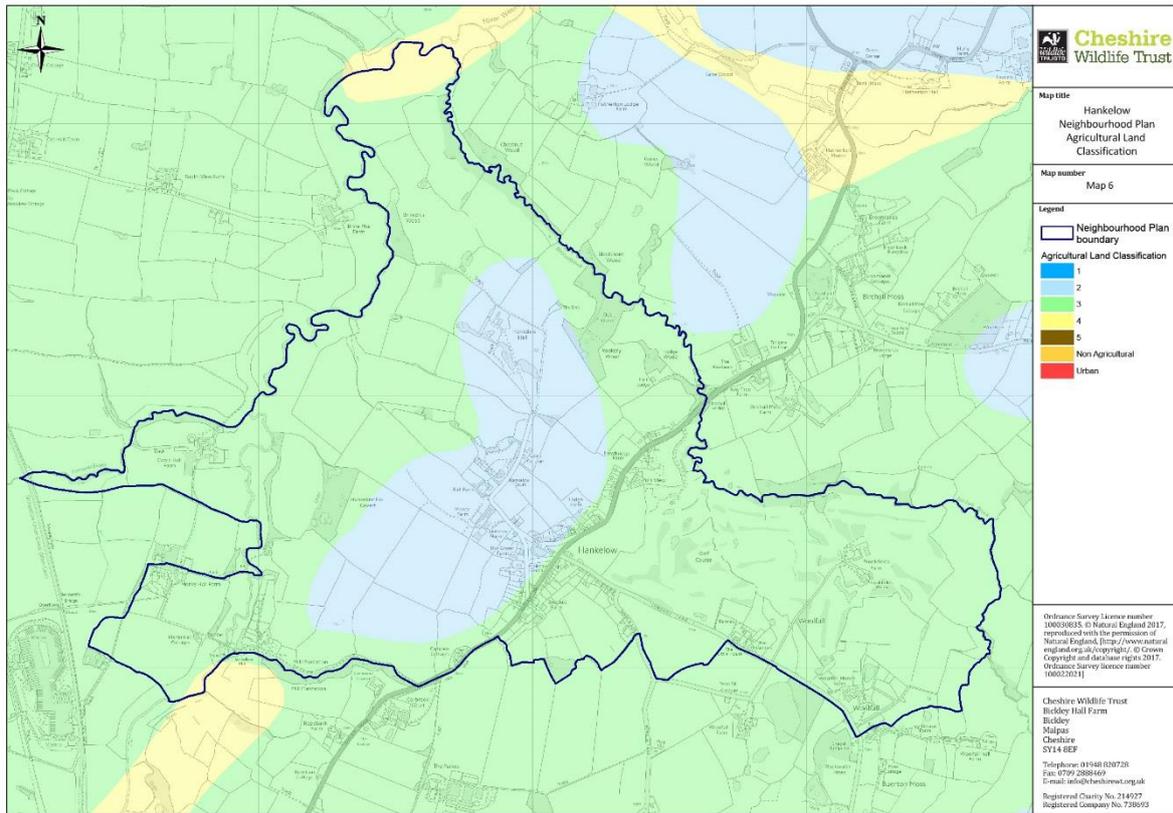
Map 4: Habitats of Principal Importance (Priority habitat) – Natural England 2014



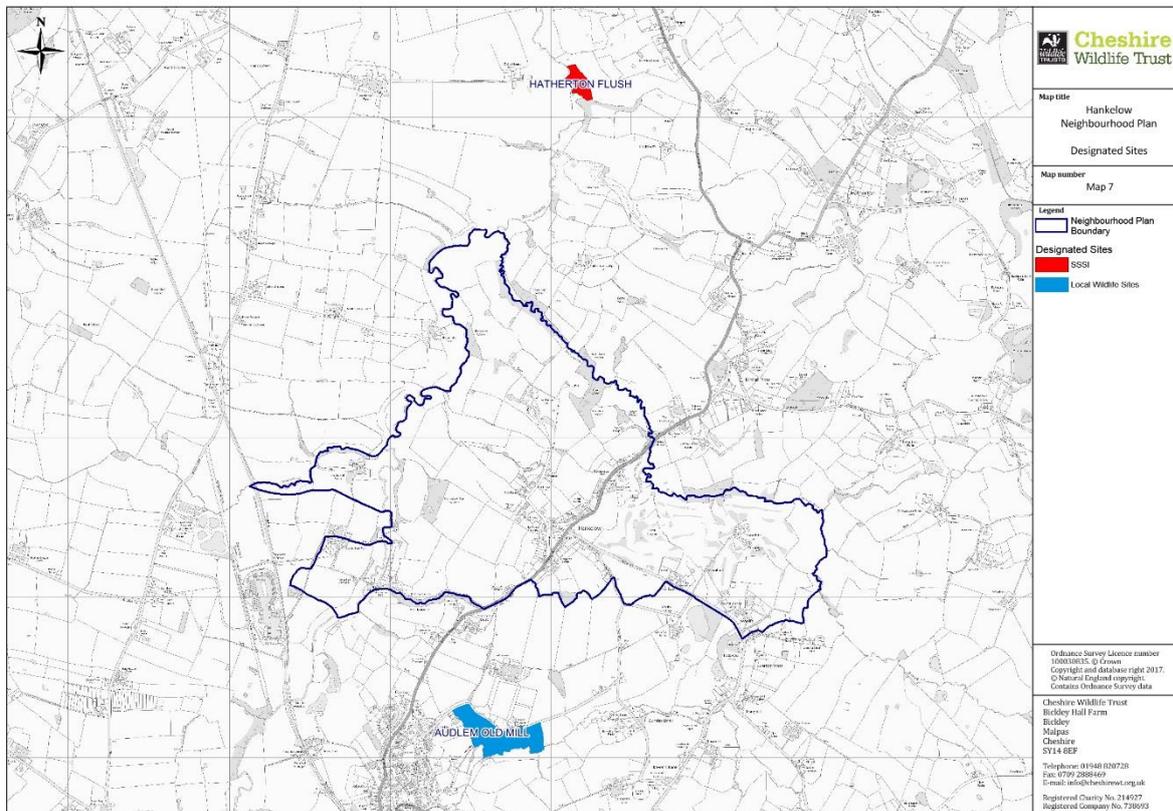
Map 5: Land Cover Map 2007 (LCM2007) is a parcel-based classification of satellite image data showing land cover for the United Kingdom derived from a computer classification of satellite scenes obtained mainly from the Landsat sensor



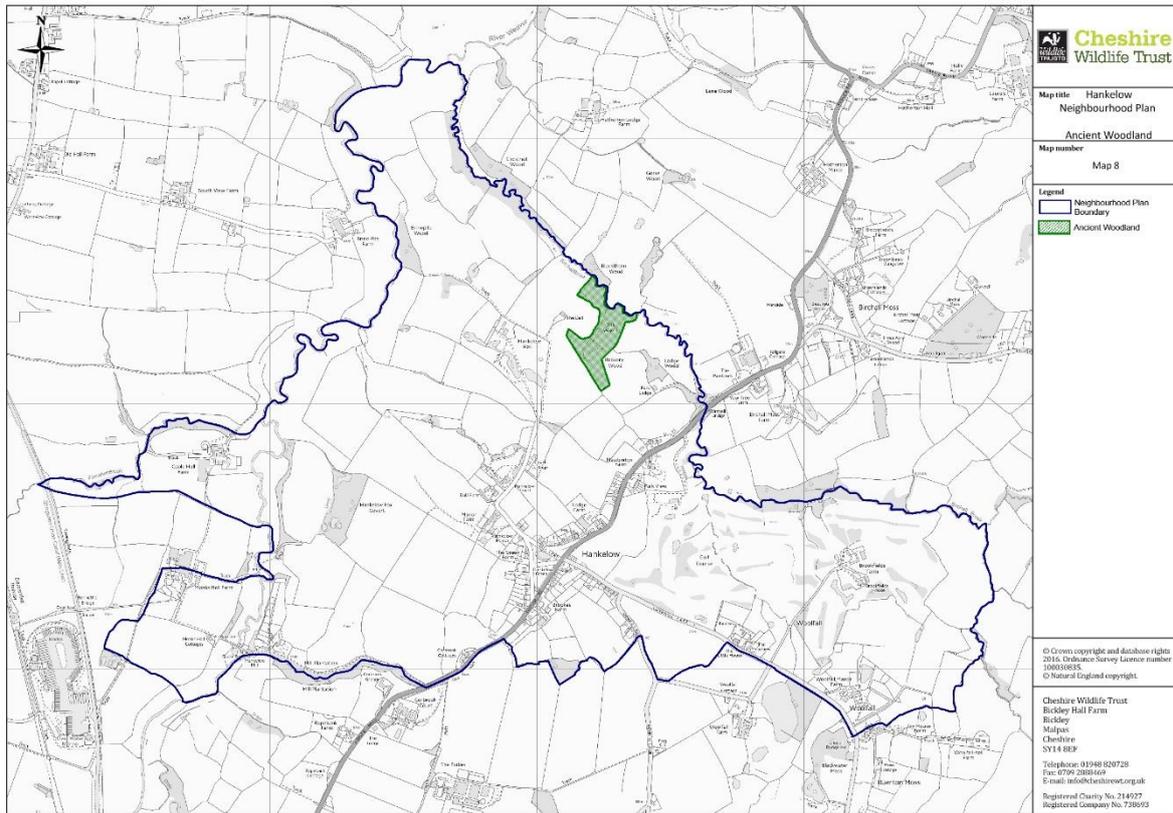
**Map 6: Agricultural Land Grading – Natural England 2013**



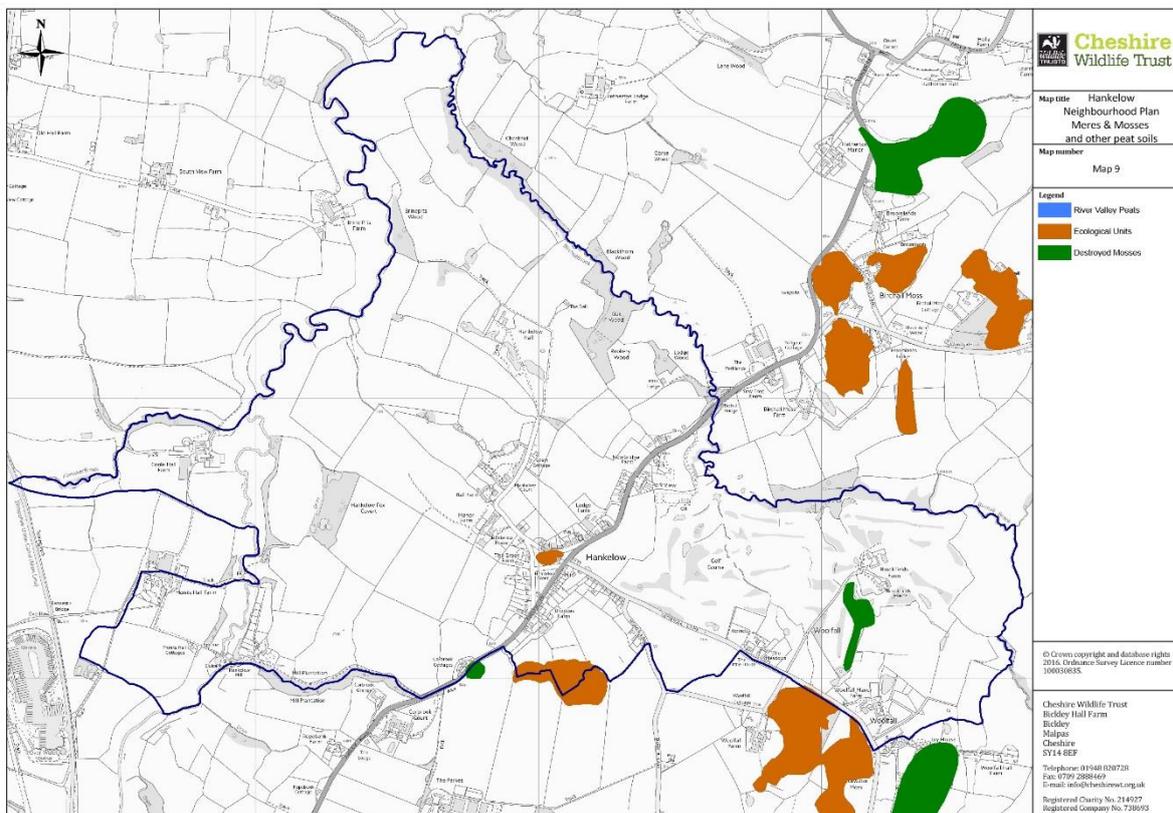
**Map 7: Designated Nature Conservation Sites - including Sites of Special Scientific Interest, Local Wildlife Sites, Local Nature Reserves, European designated sites (SAC, SPA) and Ramsar sites.**



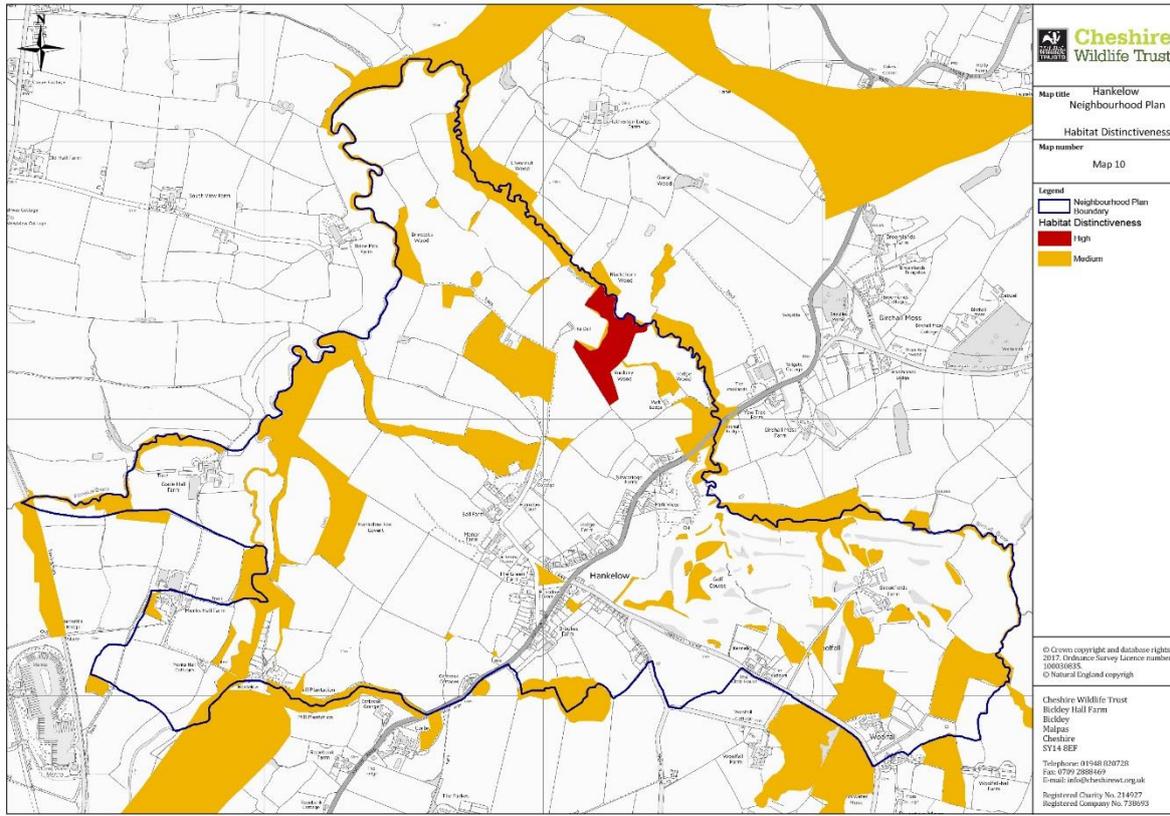
**Map 8: Ancient woodland – Natural England 2015**



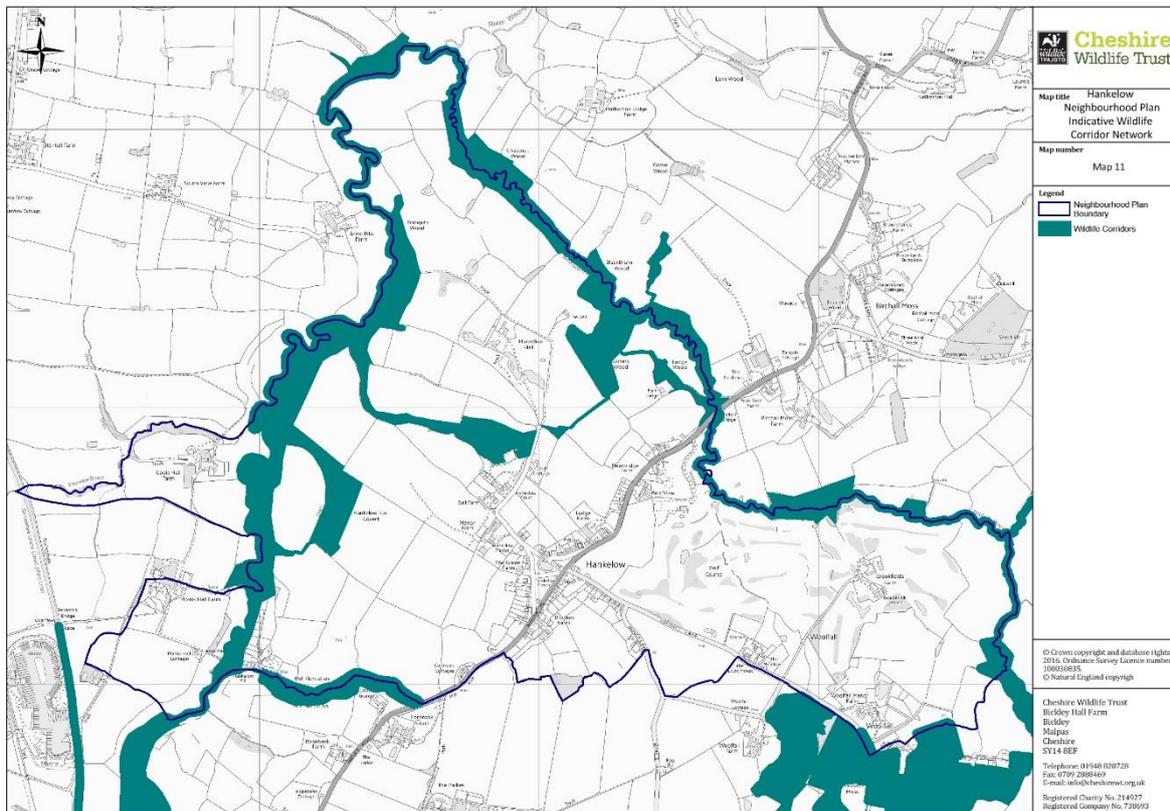
**Map 9: Meres and Mosses and other peat soils, Meres and Mosses Landscape Partnership Scheme 2016**



**Map 10: Habitat Distinctiveness**



**Map 11: Indicative Wildlife Corridor Network**



## *Results and discussion*

### *High and Medium distinctiveness habitat*

Rookery, Blackthorn and Oak Wood are classified as ancient as they appear on the ancient woodland inventory (Natural England 2015) and are likely to have been in existence since 1600 AD. The register was put together initially using a size threshold of 2 hectares which may explain why some of the smaller woods that appear on the 1836-51 Tithe maps such as Brinepits Wood, Lodge Wood, a fragment north of Brookfields Farm and part of Chestnut Wood are not on the inventory. The inventory was compiled using a combination of factors such as shape, internal boundaries, old maps, ground survey and aerial photography. Any existing woodland that appears on the 1836-51 Tithe maps should be considered as potential ancient woodland, irrespective of its size. Ancient woodlands are considered irreplaceable habitats due to the time taken for them to acquire their diverse fauna and flora and woodlands on the Ancient Woodland Inventory carry a high level of protection under National Planning Policy Framework.

The high quality woodland in Hankelow and the surrounding area provides important habitat for notable red listed<sup>1</sup> bird species including spotted flycatcher. Other notable woodland bird species that have been recorded in the wider area during the period 2004-6 include lesser spotted woodpecker and cuckoo. Kingfishers have also been recorded in riparian habitat along the Weaver.

South of Brookes Farm a small parcel of woodland has developed, or has been planted, on an area of what is probably relict mossland habitat. Mosslands are recognised as internationally important habitats as they are rapidly disappearing across much of Europe. As these habitats dry out or disappear under trees, agricultural fields or developments, so too do the specialised flora and fauna they support, such as cotton grasses, sphagnum mosses and wetland invertebrates. Once widespread in lowland Cheshire it is thought that there are as little as 316 ha of wet mossland<sup>2</sup> in this wider region and it is now one of the rarest inland broad habitat types in Cheshire. In recognition of this the Meres and Mosses Nature Improvement Area (NIA - described on page 8) was identified by the government in 2012 as a priority area for wetland habitat restoration at a landscape scale. This NIA encompasses part of north east Hankelow and the numerous areas of relict mosslands in the locality. The Brookes Farm site (which sits just outside the NIA) has been wooded since at least 1875 and is therefore unlikely to still support any mossland flora. However due to the likely presence of underlying peat and providing the soils and hydrology have not been affected too greatly, there may be some potential to return this to an important wetland habitat in the future.

Hankelow Fox Covert is an area of plantation woodland that dates back to the period between 1875 and 1910. Planted as shooting cover around a group of ponds, it is likely that this area still supports important wetland habitat and wetland species.

Riparian woodlands such as those present along the River Weaver and Birchall brook often have a rich flora but unfortunately they also provide perfect conditions for the spread of the invasive non-native Himalayan balsam. This species is probably the biggest threat to the integrity of these

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

<sup>2</sup> EConet 2003

important woodlands as its vigorous growth means that native flora is outcompeted. This can have a devastating impact on the native woodland 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 river banks causing soil to wash into the watercourses affecting the water quality.

*Medium distinctiveness habitat including semi-natural grassland, traditional orchards, ponds and hedgerows*

Areas of medium distinctiveness habitat are shown on map 10 (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 10). 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.

The majority of the 'medium distinctiveness' habitats identified in map 10 are thought to be native woodlands or semi-natural grassland with significant areas by the River Weaver. It is thought that at least some of this grassland is species-rich, priority habitat - the fastest disappearing habitat in the UK. Species-rich grassland supports high numbers of invertebrates including pollinators such as bees and butterflies. Semi-natural grasslands are important for mammals such as brown hares and birds such as barn owls and red listed sky larks.

Traditional orchards, such as the one present at Monks Hall Farm, are considered to be Priority habitats as they may contain highly localised cultivars of fruit trees and also provide numerous microhabitats which can be hotspots for biodiversity. Windfall fruit is an important food source for wintering birds such as fieldfare and redwing. The presence of dead wood is particularly important as it may support rare species of saproxylic invertebrates, fungi, bryophytes and lichens. The flowering trees provide an important source of pollen and nectar for numerous species of declining pollinators including bees, hoverflies and moths.

There are several ponds in the NP area including a mill pool at Hankelow Mill and a pond on Hankelow Green which hosts native wetland flora and is therefore likely to support species such as amphibians and dragonflies. There are a number of ponds in the Woolfall area (including on the golf course) and ponds in woodlands such as Hankelow Fox Covert. The rest of the NP area has a fairly low density of field ponds compared to some other areas of lowland Cheshire, however where these exist they help contribute to the permeability of the landscape for wildlife. Ponds have been highlighted as habitat of medium distinctiveness in map 10 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.

Landscape permeability is also underpinned by the hedgerow network which can provide excellent habitat for declining farmland bird populations such as sparrows. Invertebrates and small mammals also inhabit hedgerows, particularly those with adjacent wide field margins. The small mammal population in turn supports birds such as barn owl (recorded in the locality) which consequently do best in areas where the traditional farmland landscape is intact.

### *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 11) with ecological connectivity within and beyond the Hankelow Neighbourhood Planning area. The connecting wildlife corridors identified for neighbouring Audlem and Buerton are also highlighted on map 11.

The wildlife corridors broadly follow the River Weaver and Birchall brook and the habitats present along these watercourses. Land bordering watercourses is usually less intensively managed as it is often on steep gradients difficult to access by modern farm machinery. The steepest slopes along a river corridor tend to be wooded and in Hankelow there are substantial areas of riparian woodland, particularly along Birchall Brook.

The River Weaver corridor has ecological connectivity with the previously identified wildlife corridor in Audlem, which continues south along the river, but also connects longitudinally with Birchall Brook at Woolfall-Hall Farm (part of the Buerton wildlife corridor).

Extensive sections of the River Weaver wildlife corridor are directly adjacent to areas of arable land. These areas will receive high inputs of agrochemicals including nitrogen based fertilisers. Where there is little buffering riparian habitat run-off from these areas is likely to seep into the adjacent watercourses. Particularly at risk of pollution is the section of the River Weaver between Brine Pits Farm and its confluence with Birchall Brook.

At Hankelow Mill the presence of sluices may create a barrier to aquatic invertebrates and fish, however the adjacent habitats provide good connectivity for other species.

The Birchall Brook corridor has one weak spot where it crosses the A529 at Audlem road, however as there are substantial areas of woodland either side of the road it is likely that species such as birds, bats and many invertebrates will cross at this point. It is not known if there is any connectivity under the road for land based fauna such as small mammals.

There is a third corridor which provides some ecological connectivity between the river Weaver through the centre of the Hankelow NP area and connects with Rookery Wood. It largely follows the

course of a small brook that flows into the Weaver from the direction of Ball Farm taking in field margins, areas of semi-natural grassland and a small parcel of woodland. A defunct hedgerow that connects to Rookery wood is the section where connectivity is most compromised, particularly as the field margins are narrow at this point.

*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 10 and for this reason we have incorporated a 15 metre buffer zone around the 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.

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 Priority habitat<sup>3</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 preventing flooding, but they may still hold polluted water so should not drain directly into existing wildlife habitat unless the filtration system is extensive.

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>4</sup>. Enhancement of the corridor may be facilitated by opportunities that arise 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 medium 'habitat distinctiveness' (Map 10) which, although sit outside the wildlife corridor network, nevertheless may provide important wildlife habitats acting as ecological stepping stones. These areas comprise ponds, semi-natural woodlands and semi-natural/species-rich grassland.

Old meadows supporting species-rich neutral or marshy 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' (Priority/principal importance) habitat and there is a presumption that they should not be built on

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<sup>3</sup> This may currently be mapped as medium distinctiveness due to lack of information.

<sup>4</sup> Refer to Recommendations section

(as stipulated in the Local Plan and the NPPF). In order to achieve no 'net loss' of 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.

Hedgerows provides habitat connectivity between high or medium distinctiveness areas, which would otherwise be separated by extensive areas of land predominantly of low habitat distinctiveness with restricted potential for wildlife to disperse. The protection of the hedgerow network in Hankelow is especially important as many of the traditional field boundaries have been removed in the past, either as a result of agricultural intensification, or through the creation of the golf course. Many of the remaining hedgerows are likely to be low value<sup>5</sup> as they do not support features such as hedgerow trees or associated ditches, or they have gaps. One exception is the area to the north of Ball Farm where there is a particularly good hedgerow network. A strong hedgerow network is not only good for wildlife but it significantly adds to the landscape character value of an area.

### *Conclusion*

This study has highlighted that the important wildlife habitat in Hankelow is mainly associated with the woodlands and semi-natural grasslands in the vicinity of the River Weaver and Birchall Brook. 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.

Most notably the analysis has identified a 'wildlife corridor network' which provides ecological connectivity between woodland, wetland, grassland and riparian habitat within and beyond the Neighbourhood Planning area. The wildlife corridor network is highly likely to support a wide range of birds, plants, mammals and invertebrates that are in decline both locally and nationally. Some of the most notable are red listed birds such as the cuckoo, lesser spotted woodpecker and spotted flycatcher.

We recommend that the corridor network shown in map 11 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 10. 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. All development proposals, including those on low distinctiveness

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<sup>5</sup> Page 22

habitat, should be able to demonstrate no net loss and ideally a net gain for biodiversity, in line with current planning guidance (paragraphs 7, 8, 9, 17, 109, 152 of the NPPF and section 40 of the NERC Act 2006).

To summarise, future development of Hankelow 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 Hankelow'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 include land that is highly likely to meet 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 informing sustainable development and providing the building blocks of landscape scale conservation strategies.

Crucially these areas need to be ecologically linked if they are to retain their wildlife value in the long term. Providing habitat that is favourable for the movement of species between these areas will help ensure that the wildlife is more resilient to environmental change. In order to fulfil this role the wildlife corridor network should be in 'favourable condition'<sup>6</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. It is extremely important that this species is prevented from further colonising the woodlands and wetlands. The Cheshire Wildlife Trust is aware that extensive areas of non-native Himalayan balsam have previously been recorded in many of the woodlands and along the banks of the River Weaver. This species is highly invasive out-competing native flora and causing soil erosion due to the lack of binding vegetation in

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<sup>6</sup> The definition of 'favourable condition' for Local Wildlife Sites is provided in Appendix 3

winter (particularly on river banks). Himalayan balsam is 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.
- Hedgerows that form part of the wildlife corridor should be restored, particularly the hedgerow that connects with Rookery Wood and those that connect Hankelow Fox Covert to the River Weaver corridor. Locally native species such as hawthorn, blackthorn, hazel and holly should be used (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 periodically to maintain its wildlife value.
- Historical areas of mossland or wetland (for example south of Brookes Farm or at Hankelow Fox Covert) could be restored and managed in the long term. Professional advice should be sought beforehand.
- Ensuring watercourses are buffered by semi-natural habitat to provide riparian vegetation 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 (to help preserve local genetic stock) wildflower meadows<sup>7</sup>. Woodland expansion is desirable to buffer existing woodlands; however 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.

## **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

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<sup>7</sup> Cheshire Wildlife Trust can provide advice and seeds for locally sourced wildflower meadow creation.

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 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 Hankelow 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.

#### **5. Identification of ancient woodland sites for inclusion on the Ancient Woodland Inventory (AWI)**

Any existing area of woodland that is not on the ancient woodland inventory but appears on the Tithe maps 1836-51 may be considered a potential ancient woodland. CWT recommend that further investigations should be undertaken including ground survey and a search of old maps. Where there are strong grounds to suspect that the woodland has been in continuous existence<sup>8</sup> since 1600 AD the evidence should be provided to Natural England to assess whether the criteria for inclusion on the Ancient Woodland Inventory are met.

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<sup>8</sup> Sites which have been replanted may be considered as 'Plantations on Ancient Woodlands' (PAWS). These sites receive a similar level of protection to ancient woodlands in the planning system.

## Appendices

### Appendix 1

#### Habitats, LCM2007 classes<sup>9</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>9</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.