Protecting and Enhancing Over Peover's Natural Environment

Cheshire Wildlife Trust

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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), first published in 2012 drew on these principles and protecting and enhancing 'our natural, built and historic environment' is one of the three core objectives in the revised NPPF 2018 (paragraph 8c). Local (non-strategic) policies specifically designed to address the overall loss of biodiversity are known as 'no net loss policies' or 'net gain policies'. The guidance for this is enshrined in the NPPF in paragraphs 118a, 174b and 175d with the latter two paragraphs referring to 'measurable' net gain (i.e. use of a biodiversity metric). Cheshire East Council now have policies for net gain in their Site Allocations and Development Policies document and they are a signatory to the Cheshire Region Local Nature Partnership (CrLNP) **'Net Gains for Nature'** policy (January 2016) which sets out the guidance and principles of biodiversity accounting and compensation.

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 Over Peover, 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 be protected through the neighbourhood plan. It also identifies key characteristics associated with the landscape character of the Over Peover 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 zones 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.

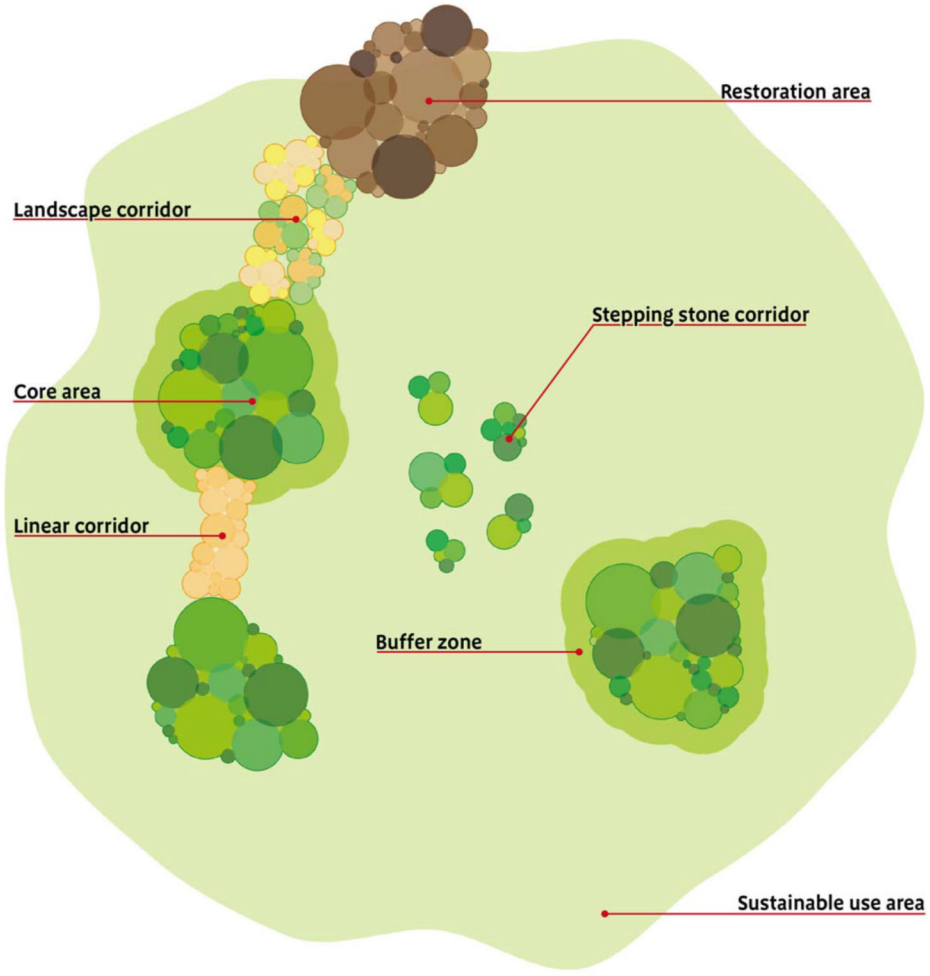


Figure 1. The components of ecological networks (Making Space for Nature report)

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.

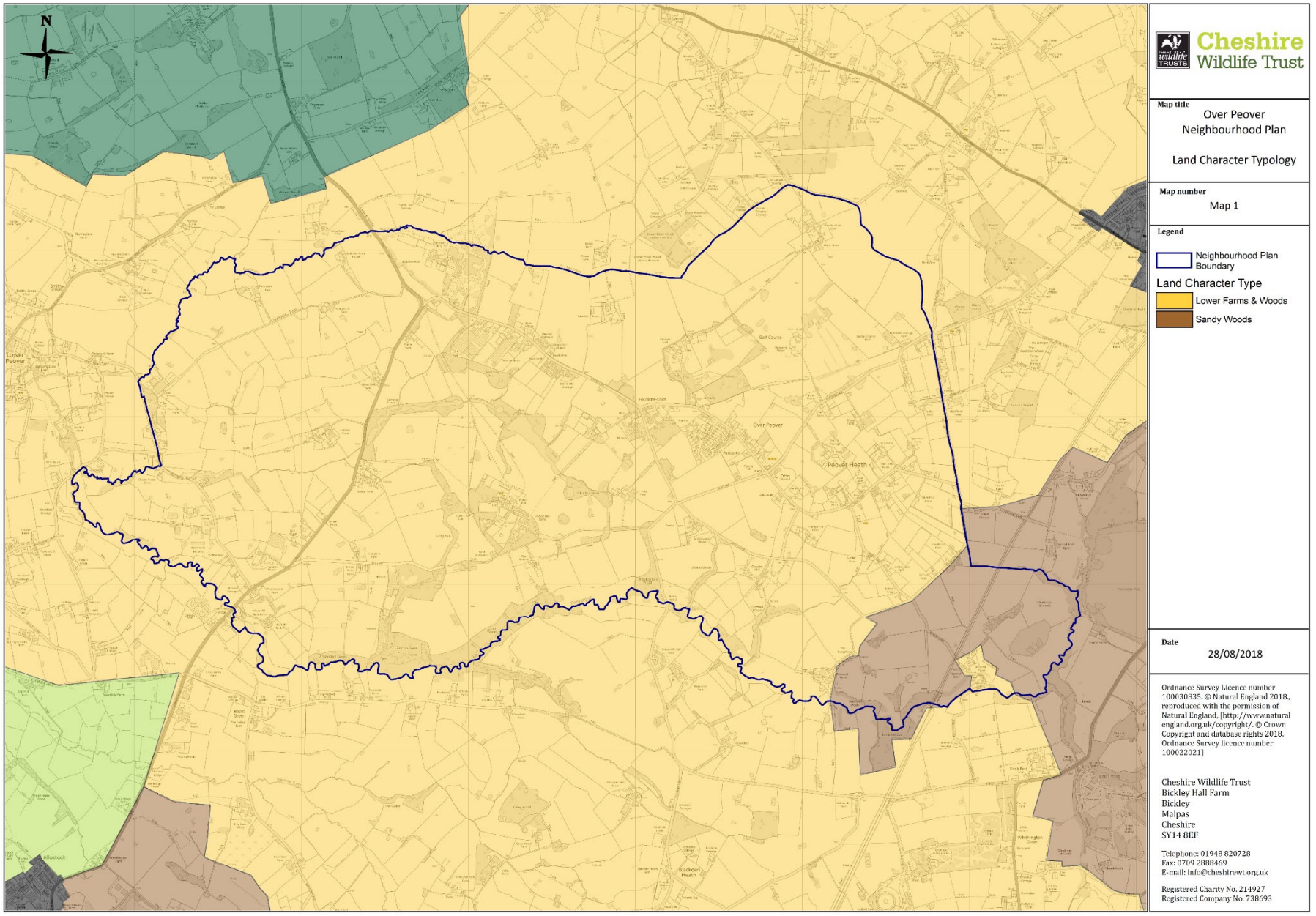
The National Planning and Policy Framework published in 2012 also includes the establishment and conservation of a coherent ecological network as a core principle including:

- 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 Over Peover lies within National Character Area 61 – Shropshire, Cheshire and Staffordshire Plain; a largely pastoral area of rolling plain which is important for food production. Especially important is dairy farming, which is well suited to the damp lush pastures that are found on the glacial till clay soils. 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 land-use 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) has identified two recognisable landscape character types (LCTs) within the Over Peover Neighbourhood planning area. The majority of the parish lies in the Lower Farms and Woods landscape character type, while a small area in the south east lies within the Sandy Woods LCT. Each LCT is subdivided into smaller Landscape Character Areas (LCAs); details of the relevant LCTs and LCAs are given below:

Type 1 – Sandy Woods (Woodland, Heath, Meres & Mosses)

Key characteristics

- Large areas of woodland (mainly planted coniferous), interspersed with relict heath.
- Active and inactive sand and gravel and sandstone extraction sites.
- Water-filled sandstone and gravel quarries.
- Glacial meres and associated mossland habitats scattered throughout, including areas with schwingmoor characteristics.
- Large (8ha plus) straight-sided hedge-lined fields.
- Recreation features associated with a Forest Park, country-park, golf courses and picnic sites.
- Low settlement density.

SW3: Withington Character Area
This character area is comprises gently rolling arable fields interspersed with blocks of woodland, some of them very extensive. Isolated farmsteads and properties are linked by minor roads passing between tall, well-maintained hedges.

Active and former sand quarries are an important feature of the Withington Character area, but most lie below ground level and are perhaps surprisingly unobtrusive in the landscape. Many former sand workings filled with water and now form a series of large water bodies through the landscape. One of the smaller pools lies to the north east of Bate Mill (a potential Local Wildlife Site) with the far larger Farm Wood Pool (a Local Wildlife Site) located within the neighbouring parishes of Lower Withington and Chelford.

Prior to these extractive industries the Withington Character Area was typified by areas of parkland and ornamental gardens associated with large estates. The parks are now less dominant in the landscape but the woodland patterns remain as a hangover of these former 18th and 19th Century estate farms.

Type 10- Lower Farms and Woods

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

Subtype LFW1 Marthall Character Area (LCA)

Marthall Character Area extends from Lower Peover, northwest to Alderley Edge. It is a medium scale, generally flat landscape with a mix of arable and pastoral farmland. Solid blocks of woodland are scattered within this Character Area with the estate woodlands of Peover Hall and Toft Hall having a strong visual presence within the landscape. Small rivers such as the Peover Eye drain the area and are often associated with lines of mature trees or linear woodlands. The steep-sided banks of the Peover Eye host woodland with ancient woodland indicators and permanent pasture. Other woodlands within the Character Area include birch-colonised mossland and planted blocks of broadleaf and coniferous woodland.

Several place names within the Character Area indicate the former presence of heath and mossland. Peover Heath is an example. Small areas of peat remain such as that at Lower Moss Wood Nature Reserve, lying within the adjacent parish of Ollerton.

Settlement is of medium density with linear settlement along roadways such as Over Peover, clusters of dispersed settlement, small nucleations and larger nucleated villages. The railway that connects Alderley Edge and Holmes Chapel runs through the area.

There is a concentration of small to medium (up to 8ha) medieval fields, particularly within the Peover Hall/ Lower Peover area. Small to medium post medieval fields are found over much of the remaining area with some medieval and large modern fields. Patchy hawthorn hedges and fences make up the field boundaries. Horsiculture has resulted in several fenced paddocks and stables.

Natural Area

Natural Areas as defined by English Nature (now Natural England) in 1996 are a series of biogeographical units reflecting ecological integrity landform, land use 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

Cheshire County Council (as it was at the time) was a partner within the Life ECOnet Project between 1999 and 2003. 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.

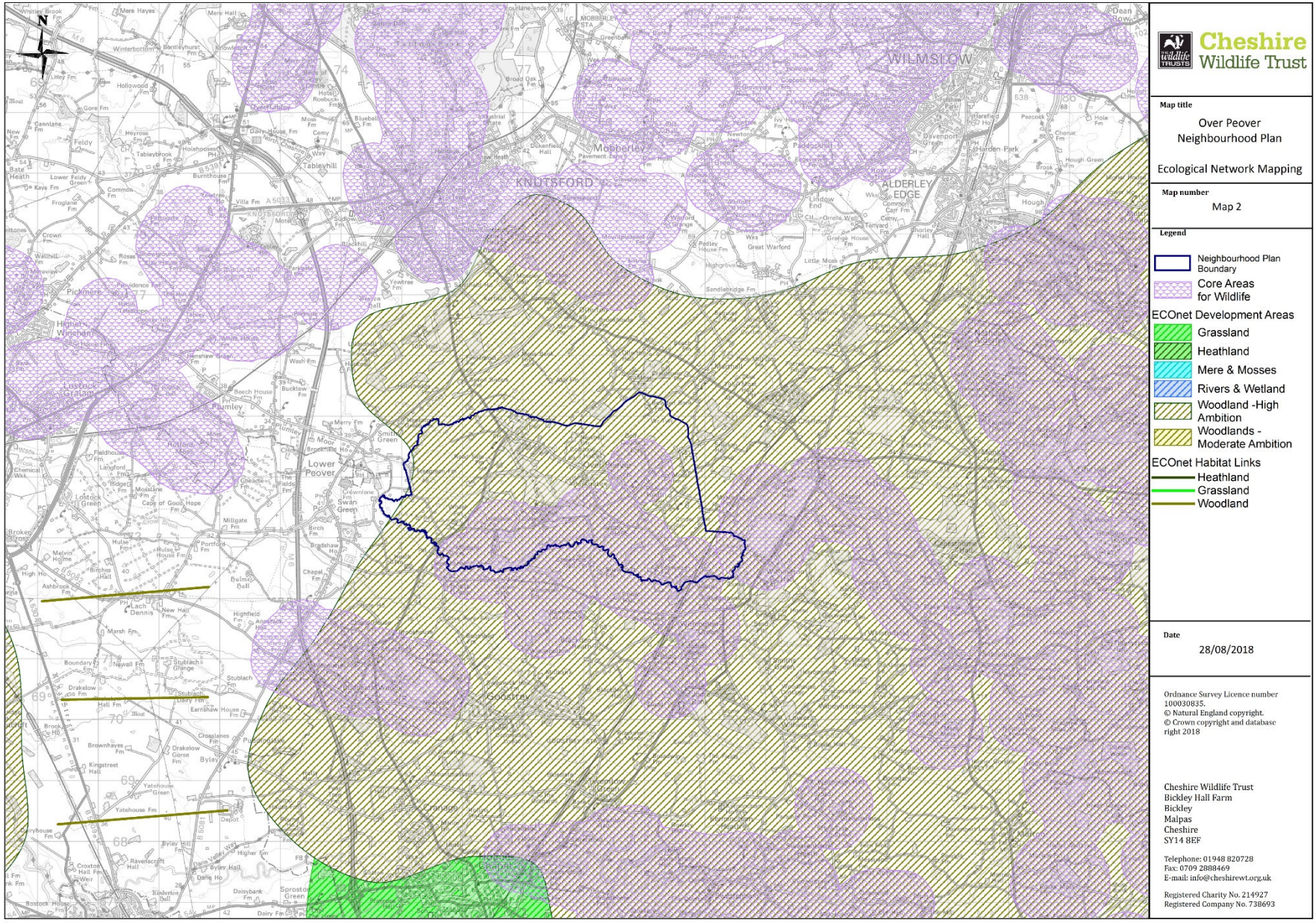
The 2003 study identified numerous core areas of key importance for wildlife. It also identified development areas which were assessed as having the greatest potential to contribute to the viability of the core areas through habitat restoration and creation schemes. The aim of any future work related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

Ecological Network for Cheshire East

An ecological network map is in the process of being developed for Cheshire East to feed into the upcoming Local Plan for the borough. The core areas within this ecological network map are created by analysis of the concentration of habitats and sites within the borough. Corridors and stepping, as well as restoration areas will be highlighted within the maps[1]. There was no access to these detailed maps at the time of writing. However, Cheshire East's Ecological network map may be useful in informing Over Peover's neighbourhood plan.

[1] Total Environment (2017) Ecological Network for Cheshire East. Chester

Map 2: Ecological Network Mapping (ECOnet)



ECOnet identified core areas as fundamental components of the county wide ecological network (shaded purple). Within Over Peover a core area for wildlife was identified covering approximately half of the parish. This core area lies mainly in the south of the parish and along much of the route of the Peover Eye including the Peover Eye Valley Local Wildlife Site. Also included within this area are the habitats identified by the Cheshire Wildlife Trust as potential Local Wildlife Sites such as the pool at Batemill and traditional orchard at Peover Hall. The Econet analysis also identified almost the entire parish as being an area where woodland creation and expansion should be targeted.

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)

1. Several published data sets were used to produce the habitat distinctiveness maps:
   - Priority habitat Natural England 2016 – 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 (International Sites, European Sites, Sites of Special Scientific Interest, Local Wildlife Sites and Local Nature Reserves), Natural England, CWT/CEC 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.)

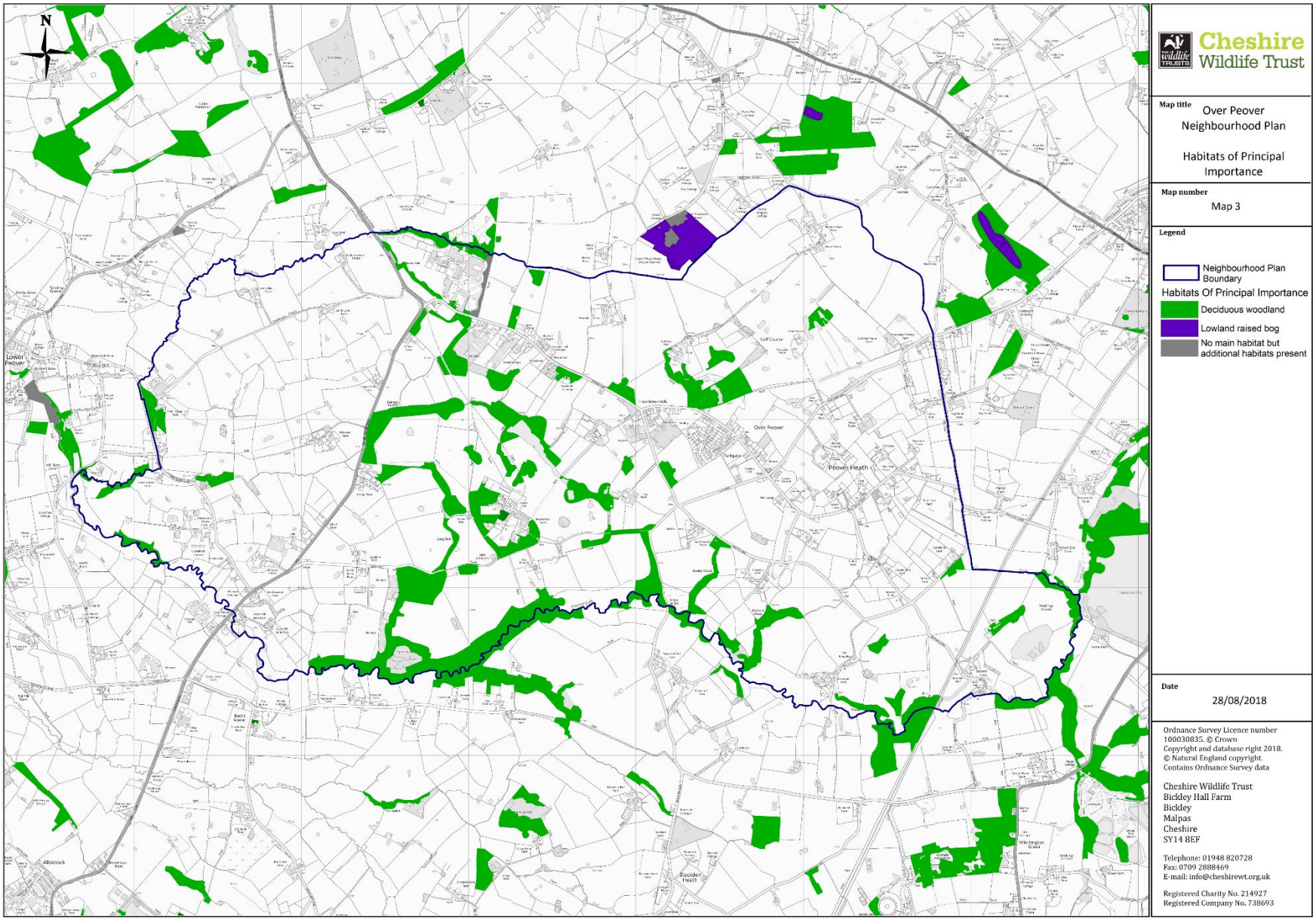
2. Aerial photography (Microsoft Bing ^{TM} Imagery, GoogleMaps) was used to validate the results by eye.

3. The Over Peover Neighbourhood Plan area Land Character Assessment and ECOnet categories were mapped and the results were used to inform the conclusions.

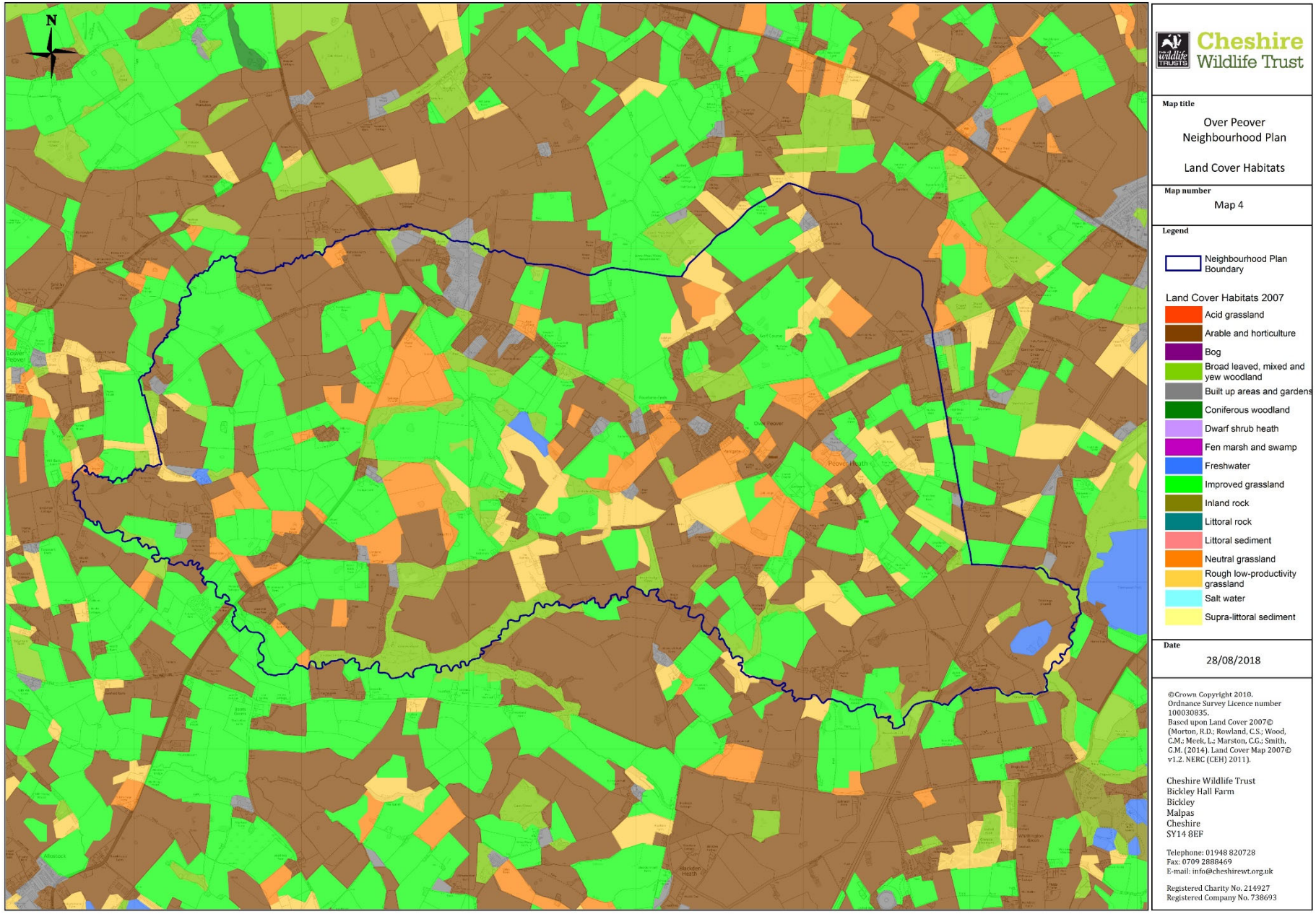
4. Information from recent planning applications in Over Peover was researched and incorporated where appropriate.

Mapping:

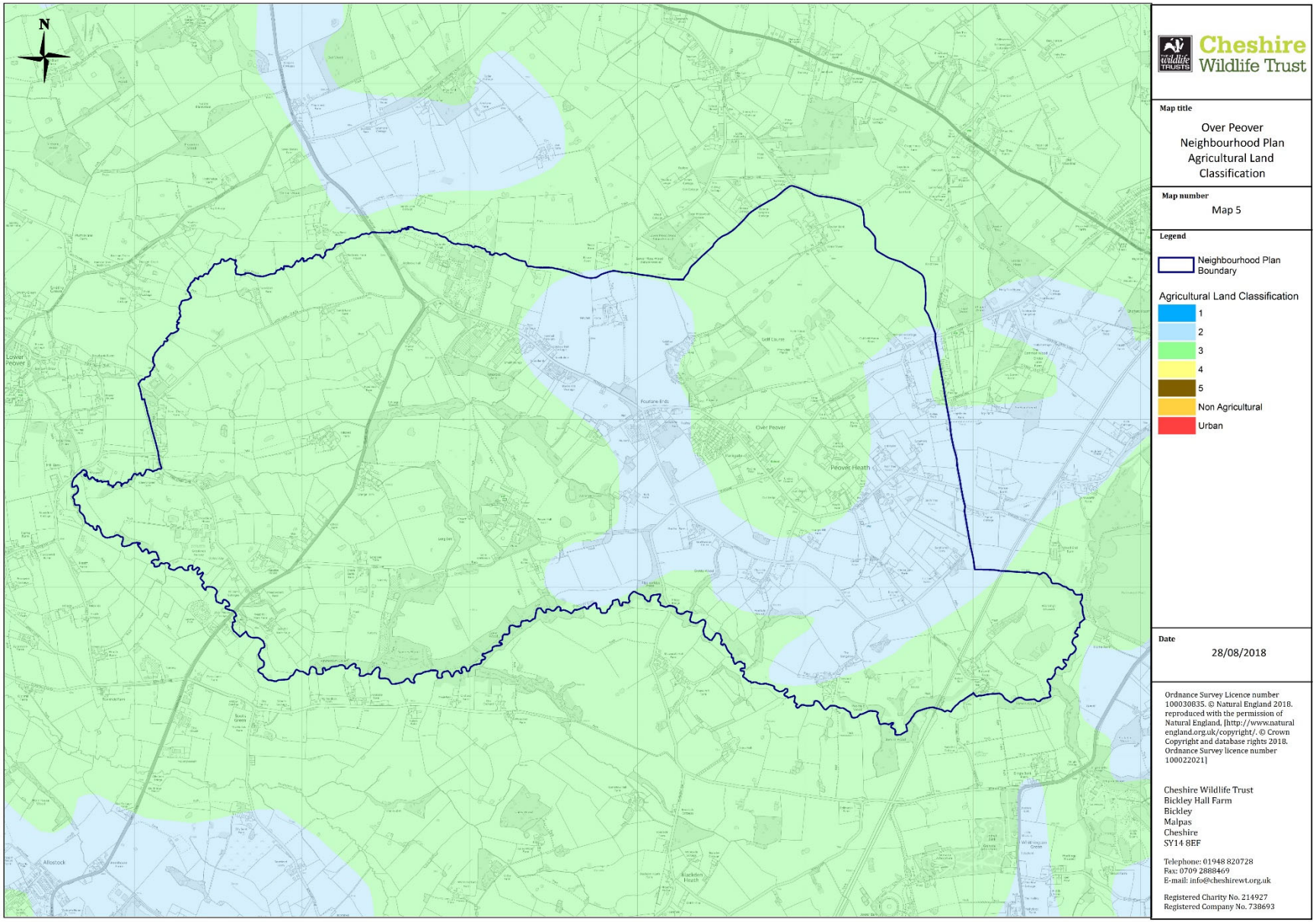
Map 3: Terrestrial habitats of Principal Importance – Natural England 2016



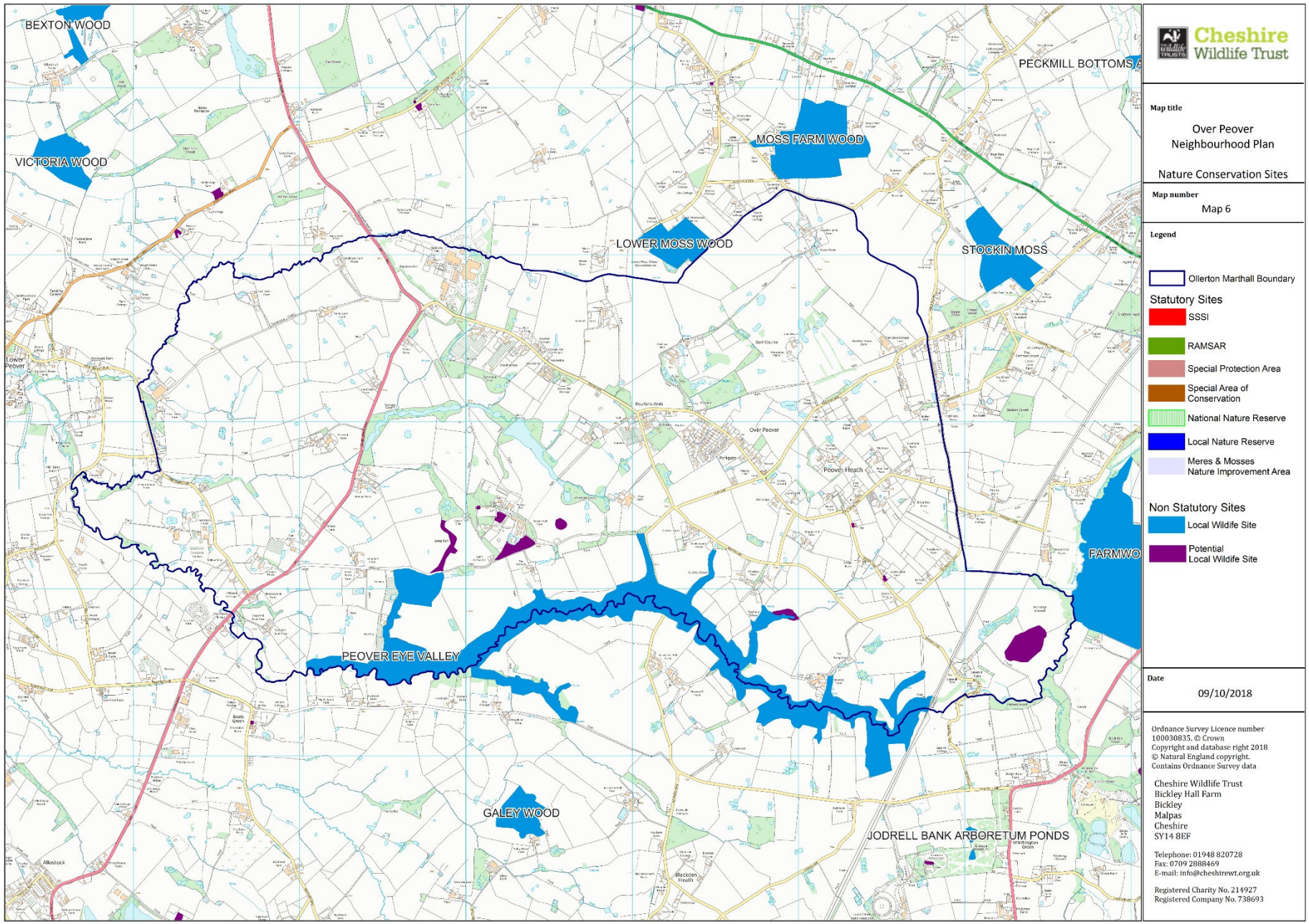
Map 4: Land Cover Map 2007 (LCM2007) parcel-based classification of satellite image data showing land cover for the entire UK derived from a computer classification of satellite scenes obtained mainly from the Landsat Sensor



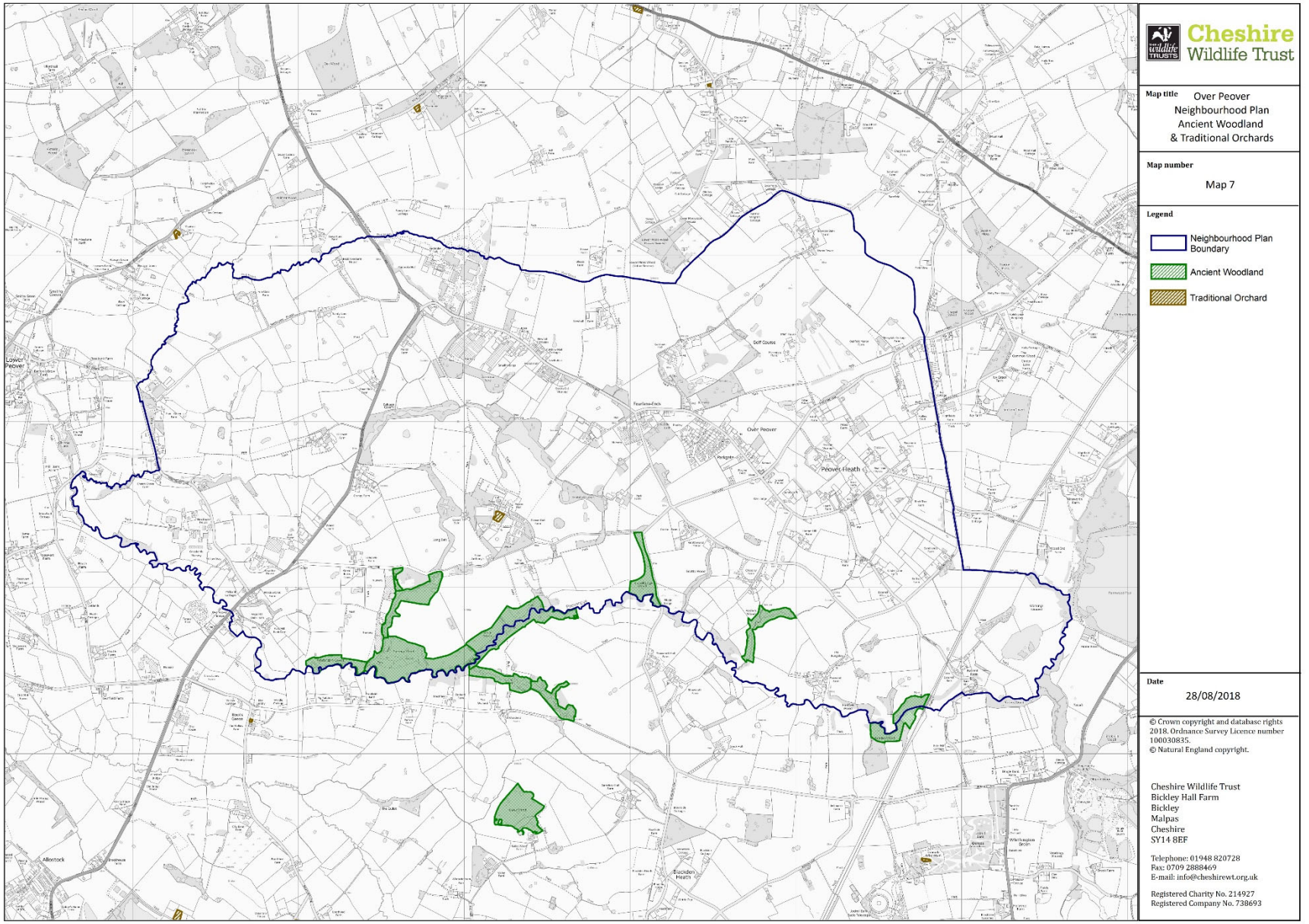
Map 5: Agricultural Land Grading – Natural England 2013



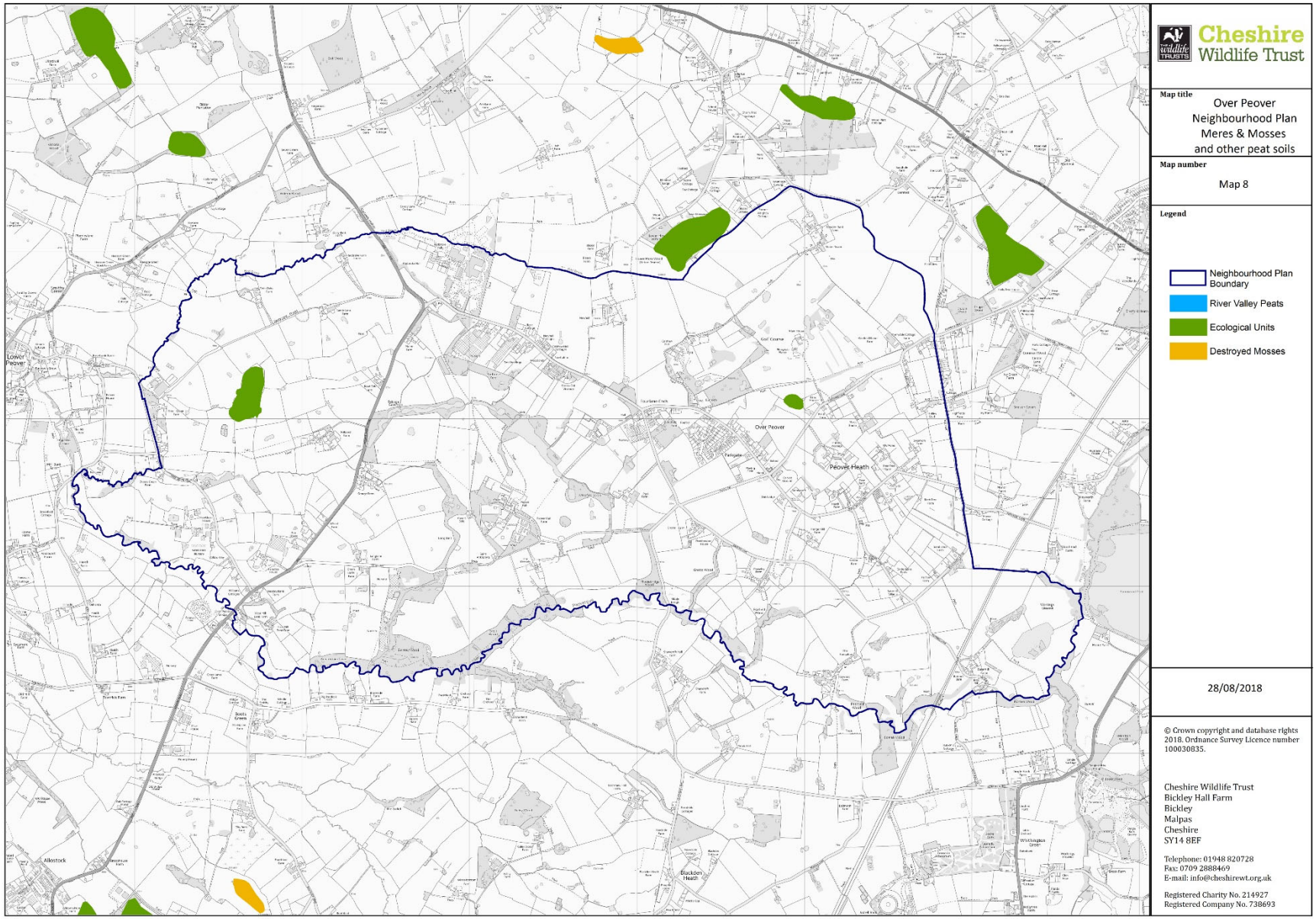
Map 6: Nature Conservation Sites, including designated Sites of Special Scientific Interest, Local Nature Reserves, European designated sites (SAC, SPA), Ramsar sites, Local Wildlife Sites and non-designated Potential Local Wildlife Sites



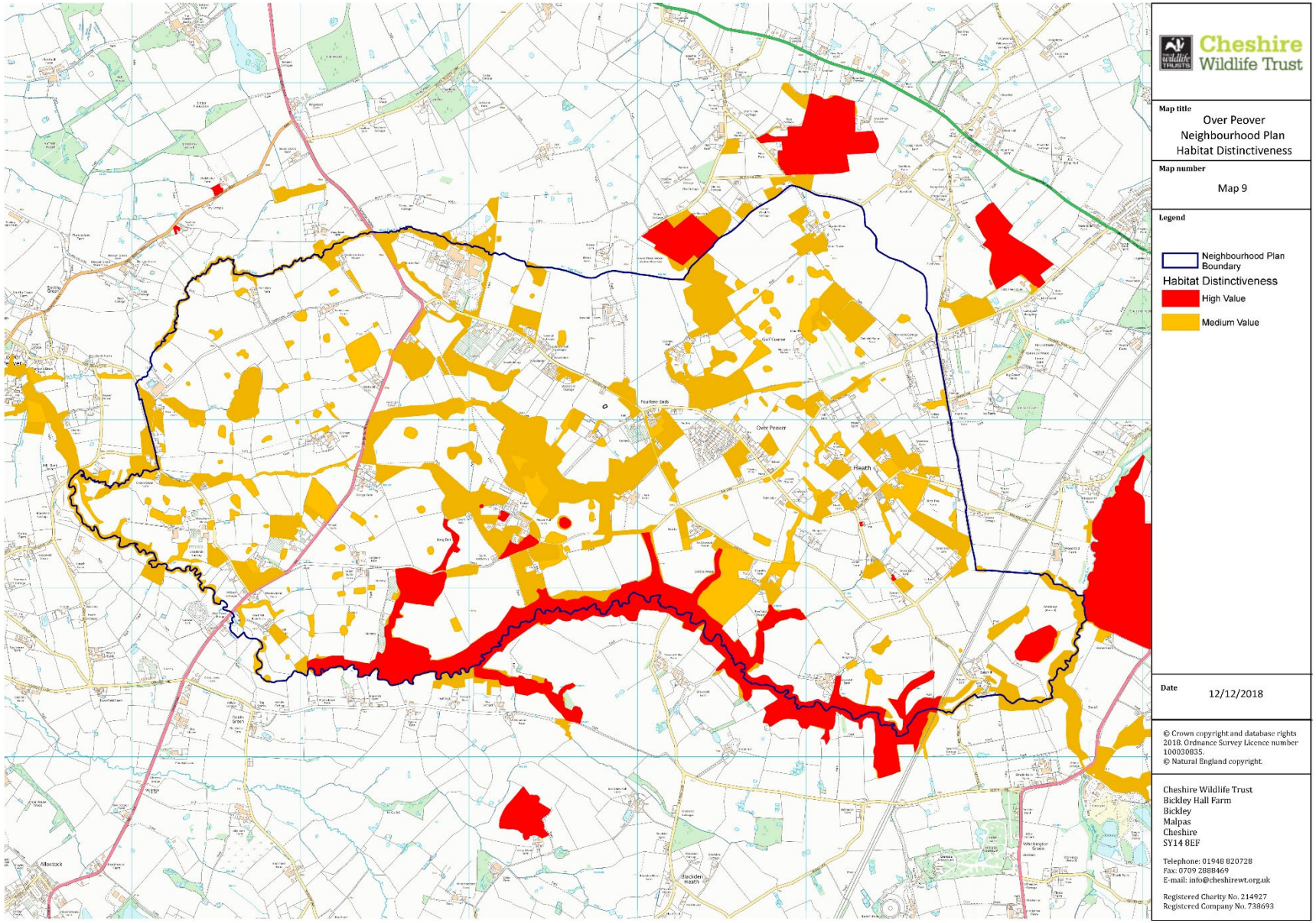
Map 7: Ancient woodland – Natural England 2015



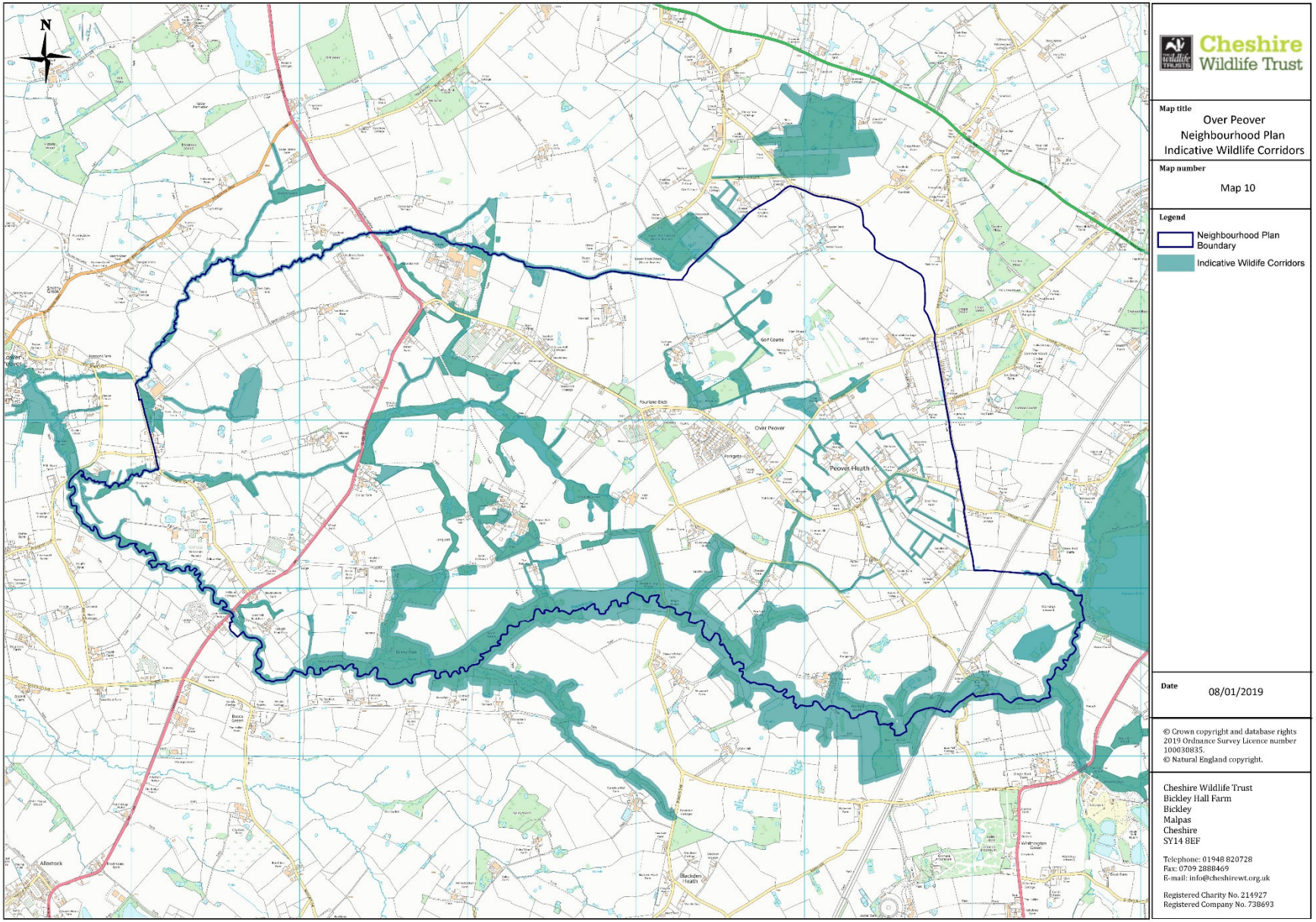
Map 8: Meres and Mosses and other peat soils, Meres and Mosses Landscape Partnership Scheme 2016



Map 9: Habitat Distinctiveness



Map 10: Indicative Wildlife Corridor Network



Results and discussion

High distinctiveness habitat

1. Woodland

Running along a long section of the Peover Eye is Pevoer Eye Valley, an area that has been selected at the county level as a Local Wildlife Site (LWS) and is considered an important wildlife corridor. The LWS also lies partly within the parish of Goostrey. Broadleaved ancient woodland, as well as broadleaved plantation is found along the banks of the Peover Eye, as well as some of its tributaries. This corridor of woodlands, alongside other habitats such as flushes, species rich hedgerows, semi-improved and unimproved grassland, includes Amsterdam Covert, Spinney Wood, Great Wood, Ribbleridge Wood, Grotto Wood, Foxfield Wood, Bomish Wood (in Goostrey) and Poolfield Wood. The majority of this woodland is present on Cheshire's tithe maps from the 1800s, with some of them appearing on Burdetts Map from 1777. Several of the woodlands have been identified as ancient woodlands by Natural England and appear on the Ancient Woodland Inventory (map 7).

The canopy within the species rich woodlands are composed largely of sycamore, oak, ash and alder. Despite dominance of non-native sycamore in parts of the woodland the ground flora is indicative of ancient woodland. Ancient woodland indicator species found in the woodlands in the past have included ramsons, wood anemone and moschatel. Secondary ancient woodland indicators yellow archangel, dog's mercury and wood speedwell have also been recorded. These are species found in ancient woodlands, but able to survive long periods after a wood has been felled and can subsequently re-invade secondary woodland. Other ground flora species include lesser celandine, common dog violet, primrose, lords-and-ladies, hedge woundwort, ground ivy, yellow pimpernel and bluebell.

Many of Cheshire's woodlands have been lost, with the percentage of woodland covering the county now considered to be around 5%. As a result expanses of bluebells are not as common as they were and consequently are now considered a local priority species in Cheshire. Where expanses of bluebells are found in the Peover Eye Valley, as well as elsewhere within the parish, they are considered significant at a county level.

Around Peover Hall three mature plantation woodlands have been identified as potential Local Wildlife Sites. Long Belt Wood is dominated by oak with species such as sycamore, birch, willow and lime also present. The plantation to the south of the moat hosts similar species- oak, ash, sycamore, but also non-natives rhododendron and cherry laurel. These woodlands are present on Cheshire's tithe maps from the 1800s and are likely to have developed an interesting ground flora. Oak and ash are found in the circular woodland to the east.

The presence of high quality woodland along the Peover Eye, as well as scattered woodland throughout the parish, means that Over Peover is likely to be important for woodland birds including priority red and amber listed species. Red listed species spotted flycatcher and lesser spotted woodpecker, and amber listed tawny owl have been recorded within the Peover Eye Valley woodlands. Other woodland bird species known to have been present within the parish within the

last ten years include cuckoo, lesser redpoll, song thrush and mistle thrush (all red listed), bullfinch (amber listed), buzzard and treecreeper. Firecrest has also been observed in the autumn.

Lower Moss Wood, which lies within Ollerton, but immediately adjacent to Over Peover, is an oak dominated woodland on peat soils. Even without considering the quality of the woodland, a woodland that sits on peat soils is of county importance. These soils contain the highest amount of stored carbon compared to other soil types and are therefore particularly important in providing ecosystem services. Removal of the peat or exposure to air, for example if the area is developed for housing or ploughed for agriculture, will result in oxidation of the carbon deposits and its subsequent release into the atmosphere. Also present within Lower Moss Wood are ponds that host a variety of dragonfly species and an area of sphagnum bog with white sedge. The woodland, through its use as an educational nature reserve, provides accessible natural greenspace.

Stockin Moss and Moss Farm Wood are birch woodlands with species such as sycamore, oak, birch and pine also present. These lie outside the parish, but nearby. As with Lower Moss Wood they are found partially on peat soils and would be of high value even without the presence of deciduous woodland priority habitat. A small wet area with *Sphagnum* mosses is found in Moss Farm Wood while a number of shaded ponds are located within Stockin Moss.

The woodlands of Over Peover and its neighbouring parishes are likely to support roosts, particularly within tree cavities, of UK priority bat species. Bats will forage for insect prey along the woodland edges, hedgerows and watercourses. The waterbodies of the Peover Eye, Red Brook, the pool at Bates Mill and the many other waterbodies within the parish are likely to provide particularly valuable feeding areas. Bat surveys conducted as part of planning applications have found brown-long eared, common pipistrelle, soprano pipistrelle and noctule bats along Grotto Lane in the south of the parish. These bats are likely to be utilising the woodland in the Peover Eye Valley. In the north of the parish, near the water tower, common pipistrelle, soprano pipistrelle and noctule have been recorded. All bats are European Protected Species (EPS) and several are also UK species of Principal Importance (S41 species) including noctule, soprano pipistrelle and brown long-eared.

There are records for the non-native invasive species *Rhododendron ponticum* within the woods of Peover Eye Valley and Moss Farm Wood (outside the parish) as well as records for rhododendron (although it is not clear which species) elsewhere in the parish at Radbroke Hall and, as mentioned above, Peover Hall. Listed as a Schedule 9 Species under the Wildlife and Countryside Act *Rhododendron ponticum* dominates the understorey and prevents the growth of ground flora species. Felling aimed in particular at rhododendron is being undertaken in Great Wood within the Peover Eye Valley LWS. The invasive species snowberry has also been recorded within the Peover Eye Valley.

2. Traditional Orchards and Veteran Trees

At Peover Hall two small areas have been mapped as having high distinctiveness. The larger of these areas has been identified by Natural England as being a traditional orchard. An orchard along Cinder Lane, which is possibly traditional, has also been mapped as a potential Local Wildlife Site and being of high distinctiveness.

A traditional orchard is an area of fruit or nut trees on traditional rootstock, planted at low density and managed in a low impact way. Fruit trees 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. Since a traditional orchard is considered priority habitat, it is valuable at a county level and is therefore mapped as a potential Local Wildlife Site.

The smaller area at Peover Hall is a veteran oak tree, believed to be more than 500 years old. Veteran and ancient trees may have a cultural or landscape value but they are also important for the species they support, particularly bryophytes, invertebrates, lichens and fungi. Veteran trees can often be of value as bat roosts or as roosts for barn owl since they are more likely to have crevices within them. Although no other veteran trees within Over Peover are known to the Cheshire Wildlife Trust it seems likely that there will be other very large or veteran trees within the parish. A huge veteran tree stump is present in the woodland south of the moat at Peover Hall and large trees are found along the driveway, as well as along the driveway to Peover Cottage. Where veteran trees are identified they should be selected as Local Wildlife Sites.

3. *Lowland Heathland and Acid Grassland*

No areas within the parish have been identified as lowland heathland and only a small area as acid grassland. However, the name Peover Heath suggests that this would formerly have been an area of heathland or acid grassland.

Although very small, the churchyard of the Over Peover Methodist Church has been identified as a potential Wildlife Site. This acid grassland hosts species such as autumn hawkbit, mouse-ear hawkweed, field wood-rush, sheep's sorrel and yarrow.

Species rich lowland acid grasslands are priority habitats within the UK, while dry lowland heaths are internationally important EU Annex 1 habitats. Many of Cheshire's lowland heaths have been lost and there is now considered to be less than 60ha of this habitat left within the county. Some remnant patches of heathland or acid grassland, which are unknown to the Cheshire Wildlife Trust, may still be present within the parish. Should these habitats be present they should be surveyed and selected as Local Wildlife Sites. Where semi-improved grasslands have been identified from aerial images these will have been mapped as medium distinctiveness habitats.

4. *Species-rich grasslands*

Within Over Peover there is little species-rich grassland, one of the fastest disappearing habitats in the UK. As a result of a combination of agricultural intensification and neglect Cheshire has lost 99% of its species rich grasslands in comparison to a national average loss of 97%.

Aside from the aforementioned acid grassland, neutral grasslands with a variety of species such as tormentil, common knapweed, bird's-foot trefoil, autumn hawkbit, pignut and betony are found on the steeper slopes, amongst the woodlands of the Peover Eye Valley Local Wildlife Site. Any areas of species-rich grassland will support populations of declining pollinators including moths, specialist grassland butterflies such as small skipper or common blue and solitary bees and hoverflies. Butterflies such as peacock, small white, small skipper, meadow brown and speckled wood have been recorded within the grasslands of the Peover Eye Valley. Where species-rich grasslands are located close to waterbodies, as they are along the Peover Eye, dragonflies and damselflies are likely to be present as these feed on other invertebrates but require waterbodies to breed.

There may be additional species rich grasslands within the parish that have not been identified as such and are amongst the areas mapped as medium distinctiveness. The agricultural land classification map (Map 3) shows the soils within Over Peover to be Grade 2 and 3, which means that the land is likely to be very good quality agricultural land or good to moderate quality agricultural land. It is unlikely that species rich grasslands would be found on such fertile soils, however the land classification is on a large scale and may not be an entirely accurate representation of the condition of the soils. Map 4 shows that the majority of the parish is improved grassland, arable or horticultural land.

5. Waterbodies and Marshy Areas

In addition to being selected as a Local Wildlife Site for its deciduous woodland and grasslands the Peover Eye Valley forms a wildlife corridor along the river. The freely meandering nature of the Peover Eye is important at a county level since the courses of many rivers within Cheshire have been diverted or altered. Exposed banks and sand/gravel deposits are likely to support a range of invertebrates. Grey wagtail (red listed), a species that nests in crevices in the vicinity of fast flowing rivers and streams, has been recorded along the Peover Eye. This species is dependent on watercourses but also the medium to high distinctiveness habitats that surround them. Kingfisher (amber listed) has also been recorded along the Peover Eye.

The river itself is of importance to a variety of aquatic species. Brown trout, a species of principal importance and UK BAP priority species has been recorded along the Peover Eye from the A50 Over Peover Bridge to Bate Mill. European bullhead, listed in Annex II of the EC Habitat's Directive as well as grayling have been recorded at Over Peover Bridge.

The endangered species (IUCN red list) white-clawed crayfish has been recorded at Over Peover Bridge with older records for the species along the Peover Eye. Populations of this native crayfish are in rapid decline and this species is protected under the Wildlife and Countryside Act. Non-native invasive signal crayfish, introduced after its escape from farming for food, has replaced the white clawed crayfish in much of its former range. Signal crayfish, a Schedule 9 non-native invasive species spreads crayfish plague to, and outcompetes, the native species. Fortunately, the species appears to be absent at present from the Peover Eye with no records for the species discovered.

Flushes arise upslope from the Peover Eye and host species such as greater bird's-foot trefoil, bog stitchwort, water forget-me-not, brooklime, angelica and ragged robin (considered near threatened

within the UK). Opposite-leaved golden saxifrage and mash marigold are also present in wetter areas.

Extensive areas of the Schedule 9 invasive species Himalayan balsam are found along the Peover Eye. This species was added to Schedule 9 in 2010 and is a big threat to the integrity of wetlands and woodlands as its vigorous growth outcompetes native flora. This can have a devastating impact on the native flora and a knock on effect on groups of species such as invertebrates, birds and mammals. As an annual plant Himalayan balsam dies back in winter. Where it has outcompeted the native flora there is an absence of vegetation binding the soil, which can cause severe soil erosion issues. This is particularly damaging to the banks of waterbodies causing soil to wash into the water and thus affecting the water quality.

Japanese knotweed, also a Schedule 9 species, has been recorded on the riverside within the Peover Eye Valley Local Wildlife Site. Without eradication this species may spread along the course of the river. The Schedule 9 species New Zealand pigmyweed has been recorded at Bate Mill Pool. It is likely that further invasive species are present within the parish that have not been recorded. Invasive species require control to prevent their further spread.

Farmwood Pool Local Wildlife Site, which lies outside the parish, but directly adjacent to it, is a large lagoon with steep sides. The surrounding vegetation is at its most diverse in the south west corner with species such as centaury, selfheal, yarrow and St John's-wort. Pines and wet woodland and scrub are found elsewhere. Reedmace grows in the shallow water around the islands. This pool, together with the quarry pool at Bate Mill (identified as a potential Local Wildlife Site) supports a number of water birds. Curlew (red listed), black-headed gull, common sandpiper, greylag goose, barnacle goose, oystercatcher, teal, shelduck, gadwall and mallard (all amber listed), little grebe, great crested grebe, cormorant, tufted duck and green plover have been recorded in this area. Herring gull (red listed), black headed gull (amber listed) and reed bunting (amber listed) have been recorded further west in the parish, but may well be utilising these waterbodies. White-clawed crayfish has also been recorded at Bate Mill Pool.

In neighbouring Ollerton the ponds of Lower Moss Wood Local Wildlife Site are known to support a diverse dragonfly fauna. There are no recent records available for the site, however in the past species present have included four spotted chaser, red-eyed damselfly, azure damselfly, emperor, blue-tailed damselfly, common blue damselfly and black darter.

Otter, a protected species within the UK, has not been recorded within Over Peover, but it has been recorded further downstream near the confluence of Smoker Brook and the Peover Eye. Since otters have huge territories they may be along the waterbodies of Over Peover, particularly the Peover Eye. Populations of this species, which is classed as near threatened by the IUCN, declined rapidly from the mid-1950s to the 1970s within the UK. This is believed to be in association with the introduction of cyclodiene pesticides. Widespread riparian habitat destruction also occurred prior to the decline in otter populations. A recovery of the UK population is now underway, although in some northern areas it is slower than expected. Otters within England are mainly confined to freshwater, both still waters and flowing rivers and streams. Although it is not considered essential for otters to have access to trees and shrubs in riparian habitats, they can provide areas to breed and increase

cover and forage for invertebrates, which in turn increases fish numbers- the otter's primary prey. Physical attributes of rivers will impact otters if they affect food availability and an otter's ability to move upstream where there is no suitable terrestrial alternative. An increasing number of otters have become road casualties[2].

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.

Some of the 'medium distinctiveness' habitats identified in map 9 are thought to be semi-natural grassland, these grasslands are often found on less productive waterlogged areas, margins of watercourses and steeper slopes where agricultural improvement has been more challenging. There are several small fields enclosed by hedgerows in the east of the parish. These fields are more likely to be traditionally managed than large open fields and may be species rich. Semi-natural grasslands are invaluable for wildlife as they can support populations of invertebrates and a variety of mammals.

Hare, a priority species under the UK Biodiversity Action Plan will inhabit semi-natural grasslands that lie within a patchwork of agricultural fields, which provide both areas suitable for grazing and for use as a refuge. Semi-natural grasslands will provide areas for hares to graze within while arable fields lay empty of crops. Rough grasslands will provide shelter that intensively grazed fields cannot provide. There are several records of hare in the north east of the parish.

The invertebrate populations within semi-natural grasslands provide a foraging resource for many breeding or overwintering red or amber listed farmland birds, several of which have been recorded locally including skylark, linnet, starling, yellow wagtail and grey partridge (all red listed). Species such as skylark, linnet and grey partridge will successfully breed within grasslands provided the grass is cut or land ploughed later in the breeding season if at all. Their breeding success is dependent on the presence of semi-natural grassland.

There are two areas with peat soils within the parish, marked on the Meres and Mosses Landscape Partnership map (map 8) as ecological units. These areas are likely to be valuable marshy grassland or wetland habitats (the site in the east includes ponds). It is possible that species such as *Sphagnum* mosses will be present. A diverse plant assemblage will in turn support a diversity of other wildlife.

[2] Chanin P (2003). *Ecology of the European Otter.* Conserving Natura 2000 Rivers Ecology Series No. 10. English Nature, Peterborough

Semi-natural rough grasslands, as well as woodlands, can provide valuable terrestrial habitat for amphibians, including the European Protected Species great crested newt, provided they are in the vicinity of (up to 1km from) a breeding site and the route is barrier free. The NBN Atlas and recent planning applications revealed no recent great crested newt records within Over Peover. Records do exist for neighbouring Ollerton though. Given the prevalence of this species within Cheshire and many ponds, good quality woodlands and presence of some rough grasslands within the parish, it seems likely that great crested newts would be present within Over Peover.

There is a high density of field ponds in the west of Over Peover and also around the village centre. Fields ponds contribute 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. Stocking ponds with high numbers of fish decreases the wildlife value, 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. As previously mentioned the waterbodies within Over Peover are likely to provide a valuable foraging habitat for bats. Their value to birds is as both breeding and overwintering grounds, as well as feeding habitat for species such as swallows.

The field ponds in the Colshaw Hall area support a range of dragonflies and damselflies such as large red, azure and blue-tailed damselflies. There is an older record here for black darter, considered a notable species within Cheshire. Should black darter still be breeding in these ponds or a good range of species be present they should be selected as a Local Wildlife Site.

Sections of the Peover Eye, its tributary and the Red Brook are highlighted as being of medium distinctiveness. Rivers and particularly the habitats surrounding them can provide valuable corridors that enable movement of wildlife. Riparian woodland corridors appear to run along much of the length of these rivers. The many meanders, particularly of the Peover Eye and Red Brook may result in steep banks and areas of sand or gravel. These are a valuable habitat for invertebrates such as solitary bees. A series of large ponds are found along the Peover Eye tributary north of Peover Hall, these may be of value as a habitat for species such as fish and birds.

Reed bunting (amber listed) has been recorded around Radbroke Hall. This species may be utilising marginal vegetation and wet woodland along the river as well as farmland in this area. It is possible that longer stretches of Over Peover's watercourses may be important at the county level, and therefore be of high distinctiveness due to records of brown trout, European bullhead and white-clawed crayfish.

The hedgerow network together with scattered farmland/parkland trees is fundamental to landscape permeability and provides habitat for numerous species from invertebrates to small mammals and birds. Hedgerows with a combination of tall mature trees and shorter hedge provide a varied habitat supporting a more diverse range of species. Species such as bullfinch, yellowhammer, tree sparrow, house sparrow (all red listed) and dunnock (amber listed), all recorded within Over Peover, will inhabit the hedgerows. Many invertebrates and small mammals rely on hedgerows, particularly hedgerows with adjacent wide field margins or those which lie adjacent to semi-natural

grassland or other natural habitats. Consequently, birds of prey that feed upon small mammals or farmland/woodland birds do best in areas where the traditional farmland landscape is intact. There are records of kestrel, buzzard and sparrowhawk across the parish.

Hedgerows will provide valuable flight corridors and foraging habitat for bats such as the brown long-eared bats that are thought to roost occasionally at Ye Olde Parkgate Inn. The hedgerows in the east of the parish will be utilised by species such as common and soprano pipistrelles, which were recorded along Green Lane, off Chelford Lane.

Hedgehog, a species of principal importance has been recorded within Chelford. It is therefore possible that hedgehogs are present within Over Peover. These mammals make use of hedgerows, woodlands, meadows and suburban gardens. Being an edge species intact hedgerows are a crucial habitat for hedgehogs and these features enable them to move through the landscape. With male hedgehogs averaging distances of 2km per night and females 1km, habitat fragmentation through barriers such as garden fences can be a problem for hedgehogs in more urban areas. Poisoning through slug pellets, but also the removal of prey through the use of pellets may be of concern[3].

The habitat distinctiveness mapping has not included many hedgerows, because it is difficult to gauge the wildlife value of a hedge remotely. The parish has a good network of hedgerows, although some hedgerow removal has occurred in the past with agricultural intensification. Aerial images reveal that there are plenty of good quality hedgerows in the east of the parish around Peover Heath. Here standard trees have been allowed to grow out of the hedgerows and reach maturity, adding to the habitat value of the hedges. Many of the field compartments remain the same size with their surrounding hedgerows in place when comparing aerial images of this area to the tithe maps from the 1800s. In the west of the parish standard trees have also been left to grow within the hedgerows, albeit to a lesser extent.

The parkland landscape around Peover Hall is likely to be of value to farmland birds warranting its inclusion as a medium distinctiveness habitat. Oak, lime, sweet chestnut and horse chestnut are amongst the trees here. Should this parkland be pre-19th century with occasional veteran or ancient trees it would meet the Local Wildlife Site criteria and be of high distinctiveness.

Within Over Peover there are woodlands that may be ancient in origin but are too small to appear on the ancient woodland inventory (map 7), which has a minimum size threshold of 2 hectares. These possible ancient woodlands will have been mapped as medium distinctiveness due to lack of survey information.

The majority of the areas of woodland around Peover Hall including Whitefield Covert and Ambrose Acre are present on Cheshire's tithe maps from the 1800s. The woodlands at Radbroke Hall appear as corridors of trees on the tithe maps and are therefore thought to be at least partially ancient in origin. Also on Cheshire's tithe maps are the woodland south of the road at Four-lane Ends, a parcel of woodland to the south east of Colshaw Hall, the woodland to the north east of Merrydale Manor, the woodland with its many ponds north of Bate Mill and smaller woodland parcels near the Peover

[3] Britain's Hedgehogs: research and the conservation effort in the face of serious decline in British Wildlife V28, No.2, December 2016.

Eye that aren't already included within the Local Wildlife Site. Some of these woodlands will be plantation woodland but given their maturity are likely to have developed an interesting flora and be important areas for conservation. Natural England has identified most of these woodlands at being deciduous woodland (map 3).

More recently planted woodlands can still provide a valuable habitat for wildlife, particularly invertebrates and birds. All deciduous woodlands appearing on Natural England's Habitats of Principal Importance inventory will have been included as a high distinctiveness habitat.

Wildlife corridor network

Wildlife corridors are a key component of wider 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 the Over Peover Neighbourhood Planning area. The corridor that this report has identified lies partially within the core areas for wildlife identified by ECOnet. Our research has identified wildlife corridors in the northwest of the parish, but core areas were not mapped here by ECOnet.

The corridor closely follows the watercourses of Over Peover and incorporates the parish's most valuable woodlands, ponds, lakes, grasslands and hedgerows. The corridor connects together most of the parish's Local Wildlife Sites and potential Local Wildlife Sites, as well as some of the areas identified as having habitat of medium distinctiveness.

A key corridor is that along the Peover Eye, which includes the woodlands and grasslands of Peover Eye Valley Local Wildlife Site. The woodland corridor continues along the river on both sides of the Local Wildlife Site joining up to the woodland and waterbody Local Wildlife Site Farmwood Pool. The Peover Eye itself is of importance to fish and endangered white-clawed crayfish.

Also included as corridors are the tributaries of the Peover Eye (including Red Brook) where wooded corridors on the banks and the watercourses provide habitats that allow the movement of species within the parish. These link up with the corridor that runs through the centre of the parish and is formed by woodlands, ponds, lakes, hedgerows and traditional orchard. This corridor includes the potential Local Wildlife Sites identified around Peover Hall.

There is good ecological connectivity along most of the length of the corridors, with the maximum gap in the corridor being less than 30m in length, enabling more mobile species to cross. The corridors are however discontinuous with Holmes Chapel Road, Stocks Lane and Free Green Lane dividing the corridors. Although difficult to create a continuous corridor across transport infrastructure or in urban areas, there is much scope for increasing the number of connections between corridors or for increasing the quality of those connections in other parts of the neighbourhood planning area.

Part of the hedgerow network has been included within the wildlife corridor in the east of the parish. Elsewhere the hedgerows will already provide links between corridors, however increasing

the quality of hedgerows will improve the value of those links. Establishing species rich hedgerows between Batemill pool, its neighbouring woodland with high pond density and the Peover Eye corridor would create valuable links between these areas.

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, ground water pollution, predation or disturbance caused by domestic pets and spread of invasive garden species if adjacent land is developed. Those areas identified as being of high distinctiveness but lying outside the corridor network should be protected by a 15m buffer. A 15m buffer zone is also appropriate for any land that is found to be high distinctiveness priority habitat following any ecological appraisal[4].

Any potential development proposals adjacent to a high distinctiveness habitat or a wildlife corridor should incorporate substantial mitigation and avoidance measures to lessen impacts on wildlife. For example low spillage (bat/otter sensitive) lighting should be used on the outside of buildings or in car-parks and along pathways and watercourses. Developers should be asked to install hedgehog-friendly fencing, purposely designed to allow the passage of hedgehogs from one area to another. Other measures could include the incorporation of bee bricks and bat/bird boxes into the design of buildings, ideally made of highly durable material such as woodcrete. 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 its ability to support the movement of species is desirable[5]. Enhancement of the corridor may be facilitated by opportunities arising through the planning process (e.g. Section 106 agreements, biodiversity offsetting/compensation) or through the aspirations of the local community or local landowners.

The areas of high or medium 'habitat distinctiveness' that lie outside the 'wildlife corridor network' still provide or may provide important wildlife habitats, acting as ecological stepping stones. These areas comprise of a high number of field ponds with associated marginal vegetation or woodlands, woodlands, semi-natural grassland, acid grassland, hedgerows and a traditional orchard.

The network of field boundary hedgerows, particularly in the east and west of the parish, provides habitat in itself but also connectivity between otherwise isolated woodland fragments, allowing

[4] Includes S41 Habitat of Principal Importance. This may currently be mapped as medium distinctiveness due to lack of information

[5] Refer to Recommendations section

opportunities for less mobile species to disperse. Not all the hedgerows are identified as key components of Over Peover's ecological network, however collectively these hedgerows provide linear connectivity through the neighbourhood and beyond. In addition to their intrinsic ecological value a good hedgerow network also adds to the landscape character value.

Old meadows supporting species-rich neutral or marshy semi-natural grassland have been rapidly disappearing from the British landscape. 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 these areas 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 (as stipulated in the Local Plan and the NPPF. In order to achieve 'net gain' 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

The important wildlife habitat in Over Peover is mainly associated with the woodlands, grasslands, riparian habitat and emergent vegetation along the Peover Eye and its tributaries, field ponds, additional woodlands, hedgerows and a few semi-natural grasslands. 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. Grassland surveys in particular should be avoided during the winter and spring as they are unlikely to give a complete picture of a grassland's botanical diversity and often undervalue a site. Surveys carried out by ecological consultancies on grasslands of medium distinctiveness in relation to planning applications should be carried out during the growing season in order that species rich grassland indicator species can be identified. Ecological surveys undertaken in the winter months will likely miss the importance of these grasslands.

Most notably the study has highlighted a 'wildlife corridor network', which provides ecological connectivity between habitats of high and medium distinctiveness within and beyond the parish of Over Peover.

The wildlife corridor network supports a wide range of species including birds, mammals, fish, plants and invertebrates that are in decline both locally and nationally. The endangered species white-clawed crayfish, UK BAP species brown trout and European bullhead (Annex II, EC Habitats Directive) have been recorded in the Peover Eye. The watercourses of Over Peover also support birds such as kingfisher and grey wagtail, and are possibly utilised by otter. Notable, red and amber listed birds associated with the less intensively farmed landscape include linnet, skylark, starling and yellow wagtail. While birds of conservation concern such as spotted flycatcher, lesser spotted woodpecker, cuckoo, song thrush, lesser redpoll, mistle thrush, bullfinch, tawny owl and grey wagtail have been recorded in the parish's woods and hedgerows. The waterbodies in the east, as well as neighbouring

Farmwood Pool support various wader, gull, duck and geese species. The ponds also provide a habitat for a variety of dragonflies. An assemblage of bat species such as brown long-eared, common pipstrelle, soprano pipistrelle and noctule utilisises the network of rivers, hedgerows, woodlands and ponds within Over Peover. Hedgehog, a species of principal importance is also likely to be present within the corridor network. All of these species depend on the semi-natural habitats highlighted in the report.

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 170d, 171, 174a, 174b, and footnote 57) 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. This should include measures such as installing bat/otter sensitive lighting schemes, installing durable bat/bird boxes and hedgehog-friendly fencing and ensuring surface water is directed away from sensitive areas and into SUDS schemes.

To summarise, future development of Over Peover 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 the neighbourhood planning area'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 area highlighted as a 'wildlife corridor network' in Map 10 incorporates Over Peover's Local Wildlife Sites and some of those in adjacent parishes. It is however likely that other land would also meet the criteria for Local Wildlife Site selection. These areas (some of which are identified as potential Local Wildlife Sites in map 6) should be designated if the selection criteria are met[6], as LWS designation is likely to provide a greater level of protection within the planning system.

[6] Local Wildlife Site criteria for the Cheshire region 2012
https://www.cheshirewildlifetrust.org.uk/sites/default/files/files/Cheshire%20LWS%20criteria%20V40.pdf

The wildlife corridor network should be in 'favourable condition'[7] 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 Schedule 9 and any other non-native invasive species. It is an offence to plant or otherwise cause to grow these species in the wild. The Cheshire Wildlife Trust can give further advice on the control of these non-native species. The GB non native species secretariat website also holds a wealth of information http://www.nonnativespecies.org :

  Himalayan balsam. This species is abundant within Peover Eye Valley Local Wildlife Site, but is likely to be present elsewhere in the parish, particularly further downstream.

  Japanese knotweed. Also present within Peover Eye Valley Local Wildlife Site.

  Rhododendron. Currently being controlled in Great Wood within Peover Eye Valley Local Wildlife Site. This species is also present in woodlands around Peover Hall.

  New Zealand pigmyweed recorded at Batemill Pool.

  Any other non-native invasive plant species that are discovered within the parish. Montbretia, cotoneaster, variegated yellow archangel and Spanish bluebell are examples of some of the commonest non-native invasive species.

- Where ponds have become overgrown and choked with vegetation this should be removed to allow light to penetrate, to provide areas of open water and allow a more diverse marginal flora to develop (tree/scrub cover should ideally be 10 - 15%). These measures will also benefit amphibians and invertebrates. Prior to any tree removal it should be ensured that there are no crevices that support bat populations. Tree felling should only occur outside the bird nesting season, usually considered March-August (inclusive), to ensure compliance with the Wildlife and Countryside Act 1981 under which it is an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. Ideally, no more than one third of the pond should be dredged in a single year so that existing biodiversity is retained and enhanced. Waste vegetation should be left at the side of the ditch for 24 hours before removal to allow any fauna to return to the water.

- Watercourses in intensively farmed land should be buffered by semi-natural areas to provide riparian habitat and help prevent pollution runoff (1 metre from the top of the bank

[7] The definition of 'favourable condition' for various habitats is provided in the Farm Environment Plan (FEP) Manual (Natural England 2010). The definition of 'positive management' for Local Wildlife Sites is provided in Appendix 3.

of a watercourse is the minimum requirement under cross compliance regulations, however 4-6 metres is recommended). This should improve water quality, which will be of benefit to white-clawed crayfish, aquatic invertebrates, fish otter.

- Hedgerows that form part of the wildlife corridor should be restored using locally native species such as 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.

- Cutting or grazing of all semi-natural grassland should be carried out to retain the wildlife value. This will prevent more competitive species from taking hold and the grasslands from eventually scrubbing over. Where cutting is used as a method of management it should be carried out after flowering plants have set seed. Where farmland birds such as skylark are breeding cutting outside of the bird breeding season (March to August inclusive) will avoid destruction of nests. Conversion of semi-natural grassland to arable land should be avoided.

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[8].

Reducing shrub and tree cover around the edges of field ponds throughout the parish would allow the aquatic and marginal pond flora to develop and improve the pond as a habitat for amphibians and invertebrates. In addition to restoration of existing ponds, creating new ponds would create further stepping stones and habitat for wildlife.

Natural England has devised and is paying for a scheme to create and improve pond habitat for great crested newts in Cheshire East and has selected Cheshire Wildlife Trust to start this work. The majority of Over Peover lies within the area that the scheme is targeting. Should landowners wish to be involved they should contact the Cheshire Wildlife Trust.

Woodland expansion is desirable to buffer existing woodlands or create links between them. Creation of new plantations, isolated from those currently in the parish would however be of limited value due to slow colonisation by woodland species. The ECOnet analysis (map 2) identified much of the north of Over Peover as being in an area where woodland planting should be targeted. We recommend woodland expansion anywhere in the parish where woodlands can be expanded or

[8] Cheshire Wildlife Trust can provide advice and seeds for locally sourced wildflower meadow creation.

joined together. However, it is vitally important that tree planting should only occur on species-poor (low value) habitats. A full botanical survey should be carried out prior to any planting.

Trees should be planted 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 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).

Where good quality woodlands already exist they could be allowed to expand naturally into surrounding areas, where they are not already host to priority habitats. It may however be necessary to intervene where non-native species become dominant.

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 their status in relation to *The Hedgerow Regulations*. Should the Local Planning Authority grant permission for removal, compensatory hedgerows should be provided; however it is good practice to compensate for the loss of all hedgerows whether the hedgerow regulations apply or not. Like-for-like replacement is the minimum level of compensation that could be asked for, but it is likely that good condition high value hedges will require a 3:1 replacement ratio.

Any new sections of hedgerow should be created following the guidance provided above (point 1). Filling of gappy hedgerows will ensure that hedgerows have greater connectivity, which will be of particular advantage to bats and hedgehogs.

Ideally hedgerows should be cut on rotation (outside the bird breeding season) every three years towards the end of winter. This leads to greater flowering and allows plants to fruit and/or set seed, providing a greater food resource for invertebrates, mammals and birds. Some butterfly and moth

species overwinter as eggs on shoots and twigs and are therefore severely impacted by annual flailing.

Hedgerows in intensively farmed land should be buffered by semi-natural areas to provide wildlife habitat (2 metres from the centre of the hedge is the minimum requirement under cross compliance regulations, however 4-6 m is recommended).

Reconnecting hedgerows where they have been removed in the past would have great connectivity benefit. There appears to have been the most removal of hedgerows in the centre and west of the parish to make way for agricultural intensification. Hedgerow and boundary grants are available from Natural England, as well as grants within the current stewardship schemes for hedgerow creation and improvement.

4. Species Specific Recommendations

The quality of watercourses, ponds, lakes and/or their adjacent habitats are important for fish and white-clawed crayfish, as well as possible otter. It appears that one of the best ways to preserve these species is to ensure that watercourses are unpolluted through catchment sensitive farming and to allow rivers to flow naturally.

With hedgehogs travelling long distances every night, their movement can be impeded in suburban landscapes by impenetrable garden fences. Encouraging householders, not only close to the wildlife corridor but throughout the neighbourhood planning area, to make holes in the bottom of their fences will increase permeability of the landscape and the amount of land available to this species. This should be complemented by use of no or non-toxic slug pellets and the filling of gappy hedgerows mentioned above. It is known that at least one parish within Cheshire East will be stipulating holes for hedgehogs within new developments in its neighbourhood plan.

5. Ensure net gain policies are embedded in Neighbourhood Planning policies

Providing ‘net gain’ for biodiversity is embedded in the guidance in the NPPF (paragraphs 118a, 170d, 174b, 175d). A nationwide consultation is also currently out which proposes to make biodiversity net gain obligatory when planning permission is granted. In order to protect local natural assets it is recommended that net gain policies also form part of the Neighbourhood Plan.

6. Phase 1 Habitat Mapping

It is strongly recommended that the parish of Over Peover 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[9] and Broad Habitat subclasses for LCM2007 CEH

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

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

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

Littoral sediment	20	Littoral mud	Lm	Medium
		Littoral mud / algae	Lma	Medium
		Littoral sand	Ls	Medium
Saltmarsh	21	Saltmarsh	Sm	Medium
		Saltmarsh grazing	Smg	Medium
Urban	22	Bare	Ba	Low
		Urban	U	Low
		Urban industrial	Ui	Low
Suburban	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:-

All designated sites, SSSIs and County (Local) Wildlife Sites, that are either a mere or a moss were included.

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.

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.