

Worcestershire County Council Ecology Service

Providing specialist information and advice to the public, local authorities and developers



Parish Search for Hallow Neighbourhood Development Plan

13/06/2019

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For clarity: within this report, when a value judgement is made of a given habitat (e.g. "a good habitat", or, "a habitat of value for biodiversity") we are referring to the 'ecological intactness' or 'ecological functionality' of a habitat in terms of its assemblage of characteristic native flora and therefore its likelihood of supporting habitats and/or species of principle conservation interest, as established within the Worcestershire Biodiversity Action Plan (Habitat and Species Action Plans ("HAPs" & "SAPs")) and/or Section 41 of the Natural Environment and Rural Communities Act (NERC Act, 2006) and/or Schedules 5 or 8 of the Wildlife and Countryside Act (1981, as amended) or apposite European Legislation.

Document history

| Date issued | Version ID |
|-------------|------------|
| 02/04/2019 | V1 |
| 09/05/2019 | V2 |
| 13/06/2019 | V3 |

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1 Ecological Summary for the Hallow Neighbourhood Development Plan

This document contains your ecological record search. The following pages provide an ecological summary of the Neighbourhood Development Plan area. The appendix to this document includes mapping drawn from Worcestershire County Council datasets including data provided by the Worcestershire Biological Record Centre, the accompanying records provide more detailed species-specific information.

This document is intended to support the development of the Hallow Parish Neighbourhood Plan (NHP) by collating available evidence and describing the biodiversity assets and opportunities within the NHP area. The area of search for this data-trawl is based upon data extrapolated from Malvern Hills District Council's webpages, specifically the Hallow Neighbourhood Area designated by Malvern Hills District Council on 14th July 2017¹.

Due to the wide geographic scale of the project brief, this data-trawl provides strategic-scale resolution of known biodiversity assets and, where deemed appropriate (as described further in text below), additional and higher-resolution ecological surveys will be required. Some of the evidence bases have not been ground-truthed, and some of the underlying data were gathered more than a decade ago. If the identified biodiversity assets remain, further survey is required to assess their condition and value. Some sites are known to have been lost to development or changed farming practices, however the datasets consulted represent the most up-to-date strategic scale data available and remain valid at a strategic scale (i.e. for the purpose of producing a district or parish level plan).

The following evidence bases have been drawn upon within this document:

Natural England's **National Character Area (NCA)**² studies are 'live documents' which define areas sharing similar landscape characteristics and which follow "natural lines in the landscape" rather than administrative boundaries. Natural England suggests that NCAs are an appropriate unit of land on which to base decision-making frameworks for the natural environment.

An earlier framework to interpret the county's biogeographic areas using the county's flora at a monad (1km grid square) scale was developed by John Day. As a land unit, **Worcestershire's Natural Areas**³ are intended to provide a framework for interpretation and understanding of the county's natural environment and to provide a basis for integrated conservation policy at county scale. Founded on floristic distributions established in the

¹ Malvern Hills District Council (2017) Neighbourhood Area Decision Notice: Neighbourhood Planning (General) Regulations 2012. Available at:

www.malvernhills.gov.uk/documents/10558/867999/Hallow+Neighbourhood+Area+-+Decision+Notice.pdf/0b2fdf6a-4ea0-9133-bb94-01b15d53e99c, accessed on 18th March 2019.

² Natural England (2019) *National Character Areas*. Webpage available at:

<http://publications.naturalengland.org.uk/category/587130>, accessed on 18th March 2019.

³ Day, J. J. (2001) Worcestershire Natural Areas. *Worcestershire Record* **10**: 22-13. Available online at: <http://www.wbrc.org.uk/WORCRECD/Issue10/natarea.htm>, accessed on 18th March 2019.

County Red Data Book⁴ (WWT, 1998) and subsequently updated through the 2001 Checklist of Worcestershire Flora⁵, the effort to define biogeographic Natural Areas within the county was driven by the recognition that the majority of the county's native flora is classed as Uncommon (half the flora being classed as Scarce or Rare, a third being classed as Very Rare or Extinct), and that effective conservation of natural flora must extend beyond the network of designated sites in order to tie together 'minor landscape features' in the wider countryside. Indeed, this approach was advocated within the 2010 Natural Environment White Paper, "Making Space for nature: A Review of England's Wildlife Sites". Within this report, we have also made reference to The Flora of Worcestershire⁶ (Maskew, 2014).

The Worcestershire Green Infrastructure framework 2⁷ document establishes sub-regional scale trends in biodiversity value. This is achieved through the **Biodiversity Base Map** (Worcestershire County Council, 2009) which places strategic-scale value on units of land ("Land Cover Parcels" a unit used in parity with the parallel Landscape Character Assessment) and evaluates variables including concentration and cohesion of existing semi-natural habitats. The Biodiversity Basemap is founded on the Worcestershire Habitat Inventory analysis (see WHI below for further information) of Land Cover Parcels, by aerial photograph interpretation, data from the Worcestershire Biological Records Centre and field-based survey information from partner organisations. It illustrates the biodiversity context for Worcestershire in broad terms and highlights areas where constraints to development are likely and opportunities for biodiversity enhancement exist at the sub-regional scale.

The GI Framework 2 document merges, assesses and scores the underlying set of environment characteristics relevant to Green Infrastructure (Landscape Character Assessment, Biodiversity and Historic Environment) for each Land Cover Parcel into distinct **Environmental Character Areas**. ECAs are therefore considered the most appropriate land unit for evaluating biodiversity priorities within the Hallow NHP as they hold recognised strategic importance and provide an existing synthesis, prioritising opportunities to maintain and enhance connectivity of Green Infrastructure assets across the plan area and link with adjacent areas at sub-regional scale.

The underlying **Worcestershire Habitat Inventory** combines habitat surveys undertaken 'on the ground' with historical site survey data and aerial photograph interpretation, and includes a synthesis of habitat network cohesion for most Priority⁸ Habitats within the county, revealing network strength or opportunities for de-fragmentation through habitat creation or restoration. The field-by-field aerial photographic interpretation is primarily derived from a 2005 aerial photograph set and therefore provides only a partial and historic baseline. More

⁴ Fraser, A. & Worcestershire Biodiversity Partnership (1998) *The endangered wildlife of Worcestershire: the County red data book*. Worcestershire Biodiversity Partnership.

⁵ Day, J. J. (2001) *A Checklist of Worcestershire's Flora*. Worcestershire Wildlife Trust.

⁶ Maskew, R. (2014) *Flora of Worcestershire*.

⁷ Worcestershire County Council (July 2012) Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2. Available online at: http://www.worcestershire.gov.uk/downloads/file/3775/worcestershire_green_infrastructure_framework_2, accessed on 18th March 2019.

⁸ Habitats of principal importance recognised in the Biodiversity Action Plan, or listed under Section 41 of the Natural Environment and Rural Communities Act 2006

detailed evaluation of habitat de-fragmentation opportunities must be informed by an up-to-date and formal ecological appraisal, which may also inform the requirement for detailed habitat and species survey requirements.

It must be recognised that the **Worcestershire Biological Record Centre** (WBRC) dataset comprises records submitted by amateur and professional naturalists on a voluntary basis; the dataset cannot be considered a comprehensive compendium of ecological interest within a given area; rather it is simply a 'snapshot' in time recorded by those observers who have shared their records. Absence of data cannot therefore be interpreted as absence of a protected or notable species or habitat, but rather should be considered as an under-recorded or yet-to-be assessed area where further survey might be beneficial. The WBRC database is therefore a 'living' document and should be subject to regular review by users to ensure decisions are based on up-to-date information.

2 The Ecological Context

2.1 National Character Area (NCA)²

Hallow parish is in the north west part of NCA 106, Severn and Avon Vales, an area where the dominant features are the lower valleys of the River Severn and River Avon, with their low-lying open agricultural land which is divided into distinct vales. Throughout this NCA woodland is mostly sparse and the noble chafer beetle (*Gnorimus nobilis*), a priority species, has its UK stronghold in the traditional orchards here and in neighbouring NCAs. Lowland and floodplain meadows support further priority species such as green winged orchids (*Anacamptis morio*), brown hairstreak butterflies (*Thecla betulae*), true fox sedge (*Carex vulpina*) and numerous waterfowl.

Two of the 'Statements of Environmental Opportunity' (SEO) identified in the NCA 106 report have particular relevance to the Hallow NHP area:

- **SEO 2:** Seek to safeguard and enhance this area's distinctive patterns of field boundaries, ancient hedgerows, settlements, orchards, parkland, small woodlands, chases, commons and floodplain management with their strong links to past land use and settlement history, and for the benefits this will bring to soil erosion, soil quality and biodiversity.
- **SEO 3:** Reinforce the existing landscape structure as part of any identified growth of urban areas, hard infrastructure and other settlements ensuring quality green infrastructure is incorporated enhancing health, access, recreation, landscape, biodiversity and geodiversity.

In the NCA report Natural England give examples of measures that may help to achieve the SEOs, those most relevant to the development of Hallow's NHP are reproduced below (edited to points most pertinent to Hallow):

SEO2:

- Retaining, restoring, and managing appropriately, all hedges and especially those that define enclosure of medieval strip farming where this is a strong landscape feature. This will enhance the landscape, retain historic field patterns and provide an important biodiversity resource and connectivity of particular importance across the arable areas. Good hedgerow management will also assist reduction of soil erosion and protect soil quality.
- Managing ditches and rhines together with veteran willow pollards that line their boundaries.
- Within 'ancient woodland restoration areas' (identified by Forestry Commission woodland opportunity mapping) where ancient woodland

comprises 3 per cent or more of the landscape, linking the smaller woodland fragments to secure and enhance them⁹.

- Protecting the integrity of floodplain grasslands together with embankments that are fundamental to their historic management and are important for present day flood management.
- Protecting ridge and furrow and other buried archaeology from damage by cultivation and enhance biodiversity by restoring permanent grassland.
- Protecting varied heritage assets including archaeological features such as earthwork remains, ridge and furrow, and patterns of former medieval strip farming, and ensure access to and interpretation of these important historical features.
- Promoting, managing, restoring and enhancing designed parklands, deer parks, wood pasture, commons and traditional orchards with their associated biodiversity, local genetic varieties and, historic buildings, and associated cultural heritage, through local and community events creating new recreation and education resources.
- Retaining genetic diversity of orchard trees to allow adaptability to the effects of a changing climate.

SEO3:

- Ensuring that extensions to settlements, such as residential developments considered around Worcester, are designed to ensure their visual and functional integration with the surrounding landscape and the existing urban edge. Key views to and from settlements should be retained.
- Providing access to quality greenspace through well designed green infrastructure which will benefit health and wellbeing and provide habitat increasing the permeability of the urban landscape to biodiversity.
- Ensuring any new hard infrastructure, such as new power stations or other industrial plants along the Severn, are designed to ensure visual and functional integration with the surrounding landscape.
- Ensuring that new developments provide biodiversity enhancement rather than just mitigation.
- Encouraging the creation of sustainable urban drainage systems, and surface water management plans that can create new wetland features close to urban areas and new development, tying in as part of a green infrastructure network.
- Conserving the area's richly varied traditional architecture and farmsteads, vernacular and historic buildings in timber framing and deep-red brick, encouraging the use of appropriate styles and use of

⁹ Hallow is in an area identified by the Forestry Commission as an 'Ancient woodland landscape' with 3% of land cover comprising ancient woodland (Forestry Commission, 2007. *Woodland Opportunities Map: Ancient woodland landscapes and restoration areas*. Version 2). No longer available online – see Figure 20.

locally distinctive materials. Ensuring that the repair, restoration or conversion of vernacular buildings is carried out with due regard to this historic interest using local and appropriate materials, styles and detailing.

2.2 Worcestershire's Natural Areas³

Hallow parish is within the **Laugherne Valley Natural Area** and the **Severn Northern Terraces Natural Area**. The Laugherne Valley Natural Area is large, with a relatively uniform landscape, probably due to early land tenure, and the Anglo-Saxon 'wildwood' is only partially cleared, providing an exceptional area of ancient countryside, likely to be of national significance. Diverse woodland edge and saum vegetation (tall herb) communities thrive, although they are often small patches and vulnerable to modern management practices. Bithynian vetch (*Vicia bithynica*), a nationally scarce species, has a stronghold in the Laugherne Valley; elsewhere in Worcestershire two Roadside Verge Nature Reserves have been designated specifically for this species. There are frequent but small blocks of ancient trees, mostly not formally designated due to their small size – stands of ancient woodland less than two hectares in size were not routinely added to the national ancient woodland inventory. This in no way compromises their ecological value or policy protection and it is understood that Natural England are currently reviewing the Ancient Woodland Inventory to address this.

On the eastern side of the parish the Severn Northern Terraces Natural Area comprises glacial outwash gravels, which make up light, well-drained soils. The Natural Area Description suggests that meadow clary (*Salvia pratensis*) is a 'botanical highlight' here, however other sources state that this introduced species is in fact extinct in Worcestershire^{5,6}. It is expected that the river terraces in Worcester City still hold 'considerable botanical interest', despite development, however outside the city arable agricultural practices are likely to limit biodiversity.

2.3 Landscape Character Assessment

The County Landscape Character Assessment¹⁰ places Hallow parish in the Regional Landscape Character Area (RCA) of '**Mid-Worcestershire Forest**', an area characterised by a broad rolling plain mostly underlain by red Triassic mudstones, with alluvial floodplains along the River Sever Valley. This region formed part of the Royal forests that were present across the middle of the West Midlands, a history that is reflected in the scattered locations of farmsteads and wayside dwellings, small coppices and trees in hedgerows. Landscape types in the Mid-Worcestershire Forest occurring within Hallow parish boundary are '**Principal Timbered Farmlands**', and small areas of '**Riverside Meadows**' and '**Settled Farmlands on River Terrace**'.

¹⁰ Worcestershire County Council (n.d.) Webpage: *Landscape Character Assessment*. Available at: www.worcestershire.gov.uk/info/20014/planning/1006/landscape_character_assessment/2, accessed on 22nd March 2019.

As the name suggests, and in agreement with the description above of Worcestershire's Natural Areas, Principal Timbered Farmlands have an ancient wooded character, with fields bound by hedgerows and a notable pattern of hedgerow trees, predominantly oak. The enclosure pattern is organic and settlements dispersed. The Landscape Type information sheet includes guidelines on protecting this landscape:

- **maintain** the tree cover character of hedgerow oaks, and enhance the age structure of the hedgerow oak population
- **conserve** all ancient woodland sites and restock with locally occurring native species
- **seek to** bring about coalescence of fragmented relic ancient woodlands
- **encourage the planting** of new woodlands, reflecting the scale, shape and composition of the existing ancient woodland character, favouring oak as the major species
- **conserve and restore** tree cover along water courses and streamlines
- seek opportunities to enhance tree cover along highways and other non-farmed locations
- **conserve and restore** the pattern and composition of the hedgerow structure through appropriate management, and replanting
- **conserve** the organic pattern and character of the lane networks
- maintain the historic dispersed settlement pattern

The River Terraces are mostly arable farmland, gently rolling into the river valley, where Riverside Meadows are seasonally grazed by livestock and often flooded in winter and spring. Guidelines to protect these landscape types include:

- **retain the integrity** of the dispersed settlement pattern
- **conserve and enhance** tree cover along watercourses
- **seek to maintain** cropping/horticultural land uses
- **enhance** patterns of tree cover associated with settlement
- **conserve and enhance** patterns of hedgerows / conserve and enhance continuous tree cover along hedgelines, ditches and watercourses
- **seek to retain** the unity of the linear form of these landscapes
- **conserve** all existing areas of permanent pasture
- **seek opportunities to encourage** the conversion of arable land back to pasture
- **conserve existing** wetland habitats and seek opportunities for further wetland habitat creation
- **avoid** building or road construction works
- **avoid** further drainage of waterside meadows
- **explore opportunities** to return to patterns and processes of natural flooding cycles where feasible

2.4 Green Infrastructure Environmental Character Area (ECA)

Along similar dividing lines as the landscape types described above, Hallow parish is predominantly in the **Teme Valley and Wyre Forest ECA**, with the **Severn Meadows Corridor ECA** to the east of the village and the **Severn Valley North ECA** along the river (Figure 1). The following descriptions are edited to remove parts not relevant to Hallow Parish.

2.5 Teme Valley and Wyre Forest ECA¹¹

The landscape character of this area is a mixture of Principal Timbered Farmlands, Timbered Plateau Farmlands, Wooded Estatelands, Principal Wooded Hills and Wooded Forest on the higher ground, Forest Smallholdings and Dwellings on the edge of Wyre Forest, Settled Farmlands with Pastoral Land Use on the western boundary and Riverside Meadows along the River Teme. Generally, the Teme Valley and Wyre Forest are important areas of priority and semi-natural habitats, including woodland, grasslands and scrub with a good network of watercourses.

...

Further to the east the land becomes flatter as it reaches the plain of the River Severn. Here there are more orchards on the flatter fertile ground and the woodlands tend to be discrete areas of varying sizes, often no bigger than the surrounding fields. Settlement here tends to be slightly denser as the land is easier to colonise and farm.

Overall the Teme Valley and Wyre Forest ECA are well wooded with scattered settlement and wide alluvial meadows along the River Teme. Other notable biodiversity action plan habitats within this ECA are acid grassland and heath.

The landscape and biodiversity priorities identified for the Teme Valley and Wyre Forest ECA are:

- Protect and enhance ancient woodland cover through management and replanting with mixed, native species where appropriate, respecting the characteristic tree cover pattern – discrete blocks in the Estatelands; linear, interconnecting woods along streams and dingles in the Wooded Hills and Plateau Farmlands); scattered hedgerow trees in the Timbered Farmlands and Forest Smallholdings.
- Protect and enhance the hedgerow network, respecting the characteristic enclosure pattern of each Landscape Type (organic in the dominating Timbered Farmlands and Wooded Hills; sub-regular/variable in the Wooded Estates and Forest Smallholdings) including safeguarding or replanting of hedgerow trees to address age structure and density.
- Restore and enhance the functional stream corridors, priority in the Wyre Forest and along the Laugherne Brook catchment and support ecological improvements to

¹¹ Worcestershire Green Infrastructure Partnership (2012) *Environmental Character Area Profile for the Minerals Local Plan: 1. Teme Valley and Wyre Forest*. Available at: www.worcestershire.gov.uk/downloads/download/84/environmental_character_areas, accessed on 22nd March 2019.

ensure that water bodies meet WFD standards and contribute to the favourable status of the Teme valley SSSI.

The strategic GI approach for the Teme Valley and Wyre Forest ECA is to **protect and enhance**. The overarching principles identified by the GI partnership are to:

- Enhance stream and river corridors,
- Protect ancient countryside character,
- Protect and enhance the ancient woodland habitats of the Wyre Forest; and
- Enhance and expand acid grassland habitats.

With regard to these principles, the biodiversity priorities identified for the Teme Valley and Wyre Forest ECA are to:

- Protect and enhance ancient woodland cover through management and replanting with mixed, native species where appropriate, respecting the characteristic tree cover pattern – discrete blocks in the Estatelands; linear, interconnecting woods along streams and dingles in the Wooded Hills and Plateau Farmlands); scattered hedgerow trees in the Timbered Farmlands and Forest Smallholdings.

However it should also be noted that there are overlapping priorities for landscape conservation at the ECA level, namely:

- Protect and enhance the hedgerow network, respecting the characteristic enclosure pattern of each Landscape Type (organic in the dominating Timbered Farmlands and Wooded Hills; sub-regular/variable in the Wooded Estates and Forest Smallholdings) including safeguarding or replanting of hedgerow trees to address age structure and density.
- Restore and enhance the functional stream corridors, priority in the Wyre Forest and along the Laugherne Brook catchment and support ecological improvements to ensure that water bodies meet WFD standards and contribute to the favourable status of the Teme valley SSSI.

2.5.1 Severn Meadows Corridor ECA¹²

This area is defined by the River Severn and its late glacial outwash which has created a series of river terrace deposits. These support areas of botanical interest which have been fragmented by arable land variously classified as Principle Settled Farmlands and Settled Farmland on River Terraces within the Worcestershire Landscape Character Assessment but are, in essence, associated with the rolling topography and fine sandy and fertile soils which have supported medium scale, open, sparsely treed landscapes of dispersed settlement.

...

¹² Worcestershire Green Infrastructure Partnership (2012) *Environmental Character Area Profile for the Minerals Local Plan:22. Severn Meadows Corridor*. Available at: www.worcestershire.gov.uk/downloads/download/84/environmental_character_areas, accessed on 22nd March 2019.

The boundary of the ECA skirts the edge of several discrete blocks of ancient woodland such as Shrawley Wood SSSI (6km north of Hallow) and above the river there is a good network of BAP habitats on the river scarps which are often associated with the fluvial deposits. Within 2km of Hallow parish, these include examples such as Grimley Brick Pits SSSI, and the Bournes Dingle and Thorngrove Lake Local Wildlife Sites. These are examples of the BAP habitats prioritised within the Severn and Avon Vales Biodiversity Delivery Area which both epitomises and compliments this Environmental Character Area.

Extensive river terrace deposits make this ECA an area of productive farmland with arable cropping and orchards comprising the majority of the land use. However, considerable botanical interest still remains within unimproved or semi-improved grassland. Biodiversity Opportunities and priority habitats within this ECA are detailed in the Severn and Avon Vales Biodiversity Delivery Area statement published by the Worcestershire Biodiversity Partnership (available at www.worcestershire.gov.uk/biodiversity). Key priority habitats are lowland meadow and lowland wet grassland and the restoration of these habitats from former arable land should be encouraged in the river floodplain. Opportunities should also be taken where possible to enhance or restore areas of fen, marsh, wet woodland and reedbed.

The strategic GI approach for the Severn Meadows corridor ECA is to **protect and restore**. The overarching principle identified by the GI partnership is to protect and enhance multi-functional Severn River corridor. With regard to this, the landscape and biodiversity priorities identified for the Severn Meadows Corridor ECA are:

- The northern part is composed entirely of the unsettled Riverside Meadows Landscape Type where opportunities should be sought to retain pastoral land use and management regimens that support natural river and flood plain function.
- Protect and enhance the hedgerow field boundaries in a planned enclosure pattern of medium-to-large fields. Seek opportunities to address density and age structure in linear tree belts along hedgerows, ditches and watercourses.
- Priority to protect and enhance existing site and biodiversity interest. Implementation and delivery to be directed to existing site management and buffering as a first principle. Linking of networks to be applied where practicable. Restore functional stream corridors, and re-link flood plain corridors in particular wet and floodplain grassland, reedbed and wet woodland.

2.5.2 Severn Valley North ECA¹³

This ECA forms only a small sliver of the Hallow parish area, with most of its area to the north, however it is an important feature of the parish. The Severn Valley North ECA falls wholly or partially within the Wyre Forest Acid Grasslands and Heaths Biodiversity Delivery Area, one of the priority opportunity areas determined by the Worcestershire Biodiversity Partnership for the delivery of county Biodiversity Action Plan targets.

¹³ Worcestershire Green Infrastructure Partnership (2012) *Environmental Character Area Profile for the Minerals Local Plan: 2. Severn Valley North*. Available at: www.worcestershire.gov.uk/downloads/download/84/environmental_character_areas, accessed on 22nd March 2019.

This ECA, to the north of Worcester, is centred on the valley of the River Severn which flows just to the west of the ECA boundary. The confluence of the Rivers Severn and Salwarpe (just north of Hallow parish) dominates the southern part, while the confluence of the River Stour with the Severn dominates the northern part. The ECA is Y shaped and divided longitudinally into two more or less equal parts by differing landscape characters, underlain by the surface geology and soils.

Around the two confluences the character of the landscape is more dominated by the river systems with Landscape Types Riverside Meadows, and Settled Farmlands on River Terraces. Key to these areas is the importance of retaining and enhancing a functioning floodplain along the rivers in order to protect communities downstream from flood events. Traditionally, these riparian landscapes would have included wet woodland, and functioning flood plain meadows (or hams), the remnants of which have a high biodiversity value.

The strategic GI approach for the Severn Valley North ECA is to **protect and enhance**. The overarching principle identified by the GI partnership is restoration of the Severn Flood Plain.

The landscape and biodiversity priorities identified for the Severn Valley North ECA are:

- Links should be made with existing site management, in order to achieve site expansion and buffer the key priorities including wet woodlands and grasslands. Where sites are closely associated buffering should be merged to form direct links.
- In the case of the River Severn corridor the link is already in place but augmentation of this in the floodplain will be critical for a number of GI aspirations, in conjunction with enhancements to the blue infrastructure.
- Protect and enhance the composition and pattern (planned in the estate landscapes; organic in the farmland landscapes) of hedgerows through management and replanting.
- Protect and enhance the tree cover pattern through new planting of watercourse, highway and hedgerow trees to address density and age structure; and, in the Timbered Farmlands, through creation of new woodland, with consideration for patterns of relic ancient woodland and existing woodland fragments.
- Seek opportunities to protect and create areas of permanent pasture, particularly in the Settled Farmlands and Riverside Meadows landscapes.
- In the unenclosed and unwooded Unenclosed Commons, opportunities should be sought to retain rough grazing land use and management regimes which support the unwooded and unenclosed nature of the landscape.

2.6 Designated sites of Nature Conservation Significance

2.6.1 Statutory designated sites

There are no statutory designated sites within the parish of Hallow, although Northwick Marsh SSSI (Site of Special Scientific Interest) is immediately adjacent to the parish (across the river) and Grimley Brick Pits SSSI is less than 800m upstream, and may be influenced

by development within the parish (Figure 2). Northwick Marsh SSSI is across the River Severn, opposite Hallow Park – this site may be particularly susceptible to impacts from new development on the Hallow (west) side of the river (e.g. from light spill).

2.6.2 Non-statutory designated sites

The **Laughern Brook LWS** (Local Wildlife Site) (Figure 3) and the **River Severn LWS** (Figure 4) form part of the southern parish boundary and the eastern parish boundary respectively (Figure 2). Watercourses are especially vulnerable to pollution because they may cover long distances and pollution may be carried downstream to other sensitive receptors. The brook and the river provide linear connectivity across Worcestershire and neighbouring counties, joining up with other watercourses and providing valuable habitat and landscape level links for a range of species (see section 2.7.2). Management of invasive species is important for both watercourses, to allow the valuable native flora to thrive and persist, especially the bankside trees which provide roosting opportunities for bats and nesting opportunities for birds, and scrub which provides cover for otters.

There were formerly two **Grassland Inventory sites** within Hallow parish: Margate Farm Meadows to the north-west of Shoulton, and Hallow Meadows on the west side of Hallow village, adjacent to the Laughern Brook (Figure 2). When designated, these grasslands were considered to hold a diverse botanical assemblage and contain sufficient scarce native flora so as to justify this non-statutory designation. However they may since have become degraded or destroyed – residents of Hallow report that the Hallow Meadows Grassland Inventory site is now largely scrubby woodland and a grassy play area, with only the southern part remaining as grassland. The Grassland Inventory is maintained by the Worcestershire Wildlife Trust.

Margate Farm Meadows are described as National Vegetation Classification (NVC) types MG5, 6 and 10, and it is worth noting that it is divided into nine Grassland Inventory Sites comprising several NVC grassland communities, however all parcels are listed as destroyed by improvement (i.e. agricultural enrichment) or tree planting.

Hallow Meadows is divided into three parcels, the northern part being MG5 grassland, but the middle and southern parts being listed as destroyed by improvement (i.e. nitrification of soil and subsequent loss of notable flora) and scrub encroachment.

There are no Roadside Verge Nature Reserves (RVNRs) designated within the parish.

2.7 Semi-Natural Habitats and Habitat Networks

2.7.1 Overview

Worcestershire County Council's 2010 Habitat Inventory Report¹⁴ identifies the Laughern(e) Valley / Northern Malvern Chase as areas of high value for biodiversity, although the area within Hallow parish is mostly of moderate or moderate to high value, with the area adjacent to the river considered high value (Figure 5). The WHI report describes the area as follows:

Laugherne Valley / Northern Malvern Chase

This area to the West and North-west of Worcester sits just above the Northern part of Malvern chase. This area has a diverse geology and is relatively biodiverse. The high coverage of broadleaved woodland incorporates numerous areas of ancient woodland with a range of woodland communities. Though some areas are predominantly arable, much semi-natural habitat is retained in steep valleys, on scarps, bluffs, outcrops and in linear features. Much of the area retains elements of ancient countryside, and a high coverage of traditional orchards and a relatively good network of open water add to this character. The area has a varied geology ranging through from basic, through neutral, to acidic and so the flora is very varied and diverse in places.

Coverage of possibly unimproved grassland and probably improved grassland is very high with 'known' neutral grassland coverage being really quite low and 'known' coverage of neutral meadows, calcareous and acid grassland being very low. Though much of this area, especially the grassland element, is not covered by existing survey, and survey possibly of unimproved grassland may reveal previously unknown sites of BAP or near BAP quality, and potential sites for grassland restoration.

Acid grassland coverage for the area is described in the WHI report for the area as 'very low', however historically there were three patches of acid grassland within Hallow parish, two of which are the northern and middle parcels of land called Hallow Meadows (a Grassland Inventory site, which has been lost to scrub and amenity, see above), with another in Shoulton and the third patch between Hallow and Shoulton (Figure 7). In describing the significance of acid grassland within the county, the WHI report states that it is largely lowland acid grassland, which is the Worcestershire Biodiversity Action Plan (BAP) habitat; though within the WHI much is mapped as the IHS broad acid grassland habitat type (GA0). Acid grassland can be found on acidic, often sandy soils in the north of the county and on the Malvern Hills and Commons. ... Recorded acid grassland covers just under 0.5% of Worcestershire making confirmed discoveries of acidic grassland of significance in their county and potentially regional contexts.

¹⁴ Parker, R. (2010) *Worcestershire Habitat Inventory Report*.

2.7.2 Habitat Networks

By merging all recorded priority habitats found within the parish and applying a least-cost distance analysis (following Catchpole's¹⁵ methodology) to habitats identified in the WHI, it is possible to identify 'core' areas of Biodiversity Action Plan habitats, and also to ascribe a distance which both generic and axiophytic taxa are thought likely to disperse from those core areas ('dispersal extent'). The plan at Figure 9 indicates likely semi-natural habitat cohesion and, at a strategic scale, reveals the landscape corridors most notable for their value for biodiversity and key opportunities to defragment these corridors.

Figure 9 indicates good potential north-south connectivity in the parish, along the river valley and crossing the main road to the south of Hallow village, and also potential west-east connectivity along the road from Greenstreet Farm through Shoulton, although there are gaps between Shoulton and Hallow, and north and south of Shoulton. The merged priority habitats comprise largely of grasslands (see separate map in Figure 8), but also include key woodlands (Figure 10 and Figure 13), orchards (Figure 14 and Figure 15), and some ponds (Figure 16). The parish-wide connectivity is further reflected in the biodiversity basemap (Figure 5) which scores most of the parish as having moderate to high aggregate biodiversity scores.

The traditional orchard network map (Figure 15) is based primarily on the known flight distances of the noble chafer (*Gnorimus nobilis*, see section 2.1) which has not yet been formally recorded within the parish, but with the nearest record only 2km to the north-west in Wichenford, it may simply be due to a lack of recording effort rather than a true absence from the parish. The orchard network presents an opportunity to enhance connectivity of valuable habitats, perhaps by introducing more sensitive management of newer orchards and single fruit trees in the intervening spaces. The network map shows very small orchard fragments around Hallow village, but good connectivity between those orchards west of Shoulton.

The pond network identified in the WHI offers some potential, as there are numerous small ponds and scattered larger ponds, within short distances of each other (less than 500m, a distance that most amphibian species are considered able to disperse). The main road (A443) presents a barrier to dispersal; separate metapopulations could exist on both sides of the road, however there are few amphibian records for the parish.

Connectivity between similar and complementary habitats (e.g. aquatic and terrestrial habitats for great crested newts, or roosting, commuting and foraging habitats for bats) is highly valuable to wildlife. Modern farming practices and extensive housing developments have increasingly fragmented natural areas, resulting in local extinctions in isolated areas of land that cannot support species in the long term. Neighbourhood development plans must examine connectivity of natural habitats and promote measures to improve and extend existing features.

¹⁵ Catchpole, R.D.J. (2007) *England Habitat Network Information Note*. Natural England internal briefing note.

2.8 Ancient Trees

Small blocks of ancient woodland and individual ancient trees are shown in Figure 10 and Figure 11 respectively. Ancient tree records show a cluster of ancient trees around a pond in an arable field in the south-east of the parish, three ancient trees in the churchyard and two further trees adjacent to the River Severn (Figure 11). As noted in section 2.2, not all ancient trees will be recorded, however these 2009 records show key focal points. Ancient trees are irreplaceable features within the landscape and should not be directly or indirectly impacted upon by development. Residents of Hallow carried out a survey for 'significant trees'. These are shown on the map at Figure 12 and require further survey to confirm whether they meet the criteria for 'ancient' or 'veteran' status.

2.9 Protected and Notable Species

A total of 137 records of legally protected and/or notable species (afforded additional consideration through planning policy, local Biodiversity Action Plans and Biodiversity Agreements) were returned by the Worcestershire Biological Records Centre (WBRC) (Figure 17 and Table 1). These records contain horsetails, flowering plants, invertebrates, amphibians, reptiles and mammals, with no fungi recorded – they are most likely to be under-recorded rather than truly absent.

Of particular note from the parish's records of flowering plants is a 1999 record for stinking hellebore (*Helleborus foetidus*) growing in a pavement in Hallow. This species may be native in parts of Worcestershire and introduced elsewhere⁶, it is nationally scarce and there are only 45 records for the whole county. Bluebells (*Hyacinthoides non-scripta*) are also recorded on Hallow Heath, they are a protected species under the Wildlife and Countryside Act (1981 as amended). Of the locally notable species recorded in the parish, wild liquorish (*Astragalus glycyphyllos*) and Smith's Pepperwort (*Lepidium heterophyllum*) are worthy of particular attention. Wild liquorish is scarce and declining in Worcestershire, with only 23 sites recorded in the 2014 Flora⁶, it was recorded in 2000 to the south of Hallow village. Smith's pepperwort was recorded in 1996 at Hallow sewage works, it is a 'local and rare' species, likely to be in decline, mostly due to habitat loss.

The paucity of amphibian records (only single records for four species) is likely to be due to under-recording, as reported above there are numerous ponds throughout the parish, and grassland habitat connects some of these ponds, although it has largely been 'improved' (for agriculture, rather than for biodiversity). Likewise, grass snakes (*Natrix natrix*) are the only reptile species recorded, despite the grassland habitat available to support other species. However the grass snake records are from north, south-east and west of Hallow village, suggesting that they are present across the parish area.

Many of the bird records are associated with Camp Lane Pits, Grimley, and they are mostly for species typically associated with farmland and wetland. This is a site of county level

importance for birds¹⁶. Ten of the 12 bird species recorded are included on the 'Red List' for birds¹⁷.

The WBRC database has 55 mammal records for Hallow parish (Figure 17 and Table 1), including badger (*Meles meles*), brown hare (*Lepus europaeus*), hedgehog (*Erinaceus europaeus*), otter (*Lutra lutra*), polecat (*Mustela putorius*) and six species of bat and possibly two further bat species that were identified to genus level only (the *Myotis* genus is not always possible to identify to species level without DNA testing or having the bat in the hand). The river and brook corridors will be important to many of these species, while the hedgerows and riverside meadows are more critical to others. As with other taxa, mammals in the parish are likely to be under-recorded.

2.10 Hallow green spaces and views

The parish's green spaces and views map shown in Figure 19 identifies that some of the areas particularly valued for their visual appeal correspond to the biodiversity features described within this report. For example view 14 is over a very small remnant of traditional orchard off Greenhill Lane; and view 15 includes ancient semi-natural woodland.

Linking the aesthetic value of the landscape to its biodiversity value is a useful exercise to lend added weight to the suitability or otherwise of sites for conservation and restoration or development.

¹⁶ http://worcesterbirding.co.uk/grimley_and_holt_worcestershire_20.html

¹⁷ British Trust for Ornithology (2015) *Birds of Conservation Concern 4: the Red List for Birds*. Available at www.bto.org/science/monitoring/psob, accessed on 25th March 2019.

3 Summary & Recommendations

The Adopted South Worcestershire Development Plan¹⁸ (SWDP) allocates four potential development sites within Hallow's parish boundary, from north to south these are: SWDP59zzi Land South of Greenhill Lane; SWDP59/5 Land north of Orchard Close; SWDP59zk Former Royal Oak Public House, Main Road; and SWDP59d Land at Braithwaite's Yard, Main Road. A 'significant gap' is left at the southern end of Hallow village to prevent it coalescing with the suburbs of Worcester city, while the 18th Century Thorngrove House and garden / park prevent extension of the village at its northern end.

The South Worcestershire Development Plan policy SWDP5 (Green Infrastructure) requires housing development proposals (including mixed-use schemes) to contribute towards the provision, maintenance, improvement and connectivity of Green Infrastructure. It should also be noted that SWDP5 sub-clause C states that "development proposals that would have a detrimental impact on important GI attributes within the areas identified as "protect and enhance" or "protect and restore", as identified on the Environmental Character Areas Map (Figure 1), will not be permitted unless: a) a robust, independent assessment of community and technical need shows the specific GI typology to be surplus to requirements in that location; and b) replacement of, or investment in, GI of at least equal community and technical benefit is secured". Given that biodiversity is a key theme within the sub-regional Green Infrastructure framework, it might be contended that the semi-natural and priority habitat assets as outlined within this report should be treated as "an important GI attribute". The SWDP policies should be supported by neighbourhood planning to achieve greater connectivity and GI within and between NDP areas.

SWDP22 (Biodiversity) sub-clauses A-D address consideration of impacts to designated sites, priority habitats and priority species. SWDP22 sub-clause F addresses enhancement measures (rather than compensatory measures, intended for delivery either on or off a development site).

Great emphasis should therefore be placed on the protection of existing semi-natural and priority habitat assets, this is particularly relevant to broad-leaved woodlands (especially ancient woodland), traditional orchard and botanically diverse grasslands. However, wherever feasible, opportunities should also be realised to restore these habitats and habitat networks. This may include the creation of 'stepping-stone' sites with the intention of defragmenting the local habitat network; to this end, even minor features in the landscape may prove immensely valuable. Such habitat creation efforts should always be informed by a formal ecological survey to identify sensitive receptors and to ensure maximum biodiversity gain can be achieved. By requiring all new development to demonstrate measurable net-gain for biodiversity, it may be possible to ensure both onsite and offsite biodiversity enhancement in order to achieve a cohesive conservation strategy for the parish of Hallow which achieves benefits for all at a landscape-scale.

¹⁸ South Worcestershire Development Plan 2016. Available online at: http://www.swdevelopmentplan.org/?page_id=12262, accessed on 21st March 2019.

There would be considerable value in specifically requiring enhancement measures for biodiversity to be included within the built (as well as natural) environments. This could be achieved through stipulating measures in new residential properties such as artificial nesting and roosting opportunities for species such as swift, house martin, sparrow, starling and bats, as well as measures to assist defragmentation for terrestrial species such as hedgehog and great crested newt (e.g. hedgerow planting, management of grassland for wildlife). Table 1 (Roost and nest site provision in new development) in the TCPA "eco-towns biodiversity worksheet"¹⁹ provides a useful guide in this respect.

Measures targeting restoration of the natural environment, such as de-culverting and naturalising watercourses, creation of SuDS features which aim to mimic or improve the quality and quantity of outfall from impermeable surfaces, and the creation of (wildlife-friendly) ponds should be advocated and positively promoted wherever possible.

Accompanying these operations, enhancement measures designed to provide new nesting opportunities for kingfisher and riverine mammals including otter and water vole should be realised where deliverable and appropriate.

Where the Neighbourhood Plan provides greater detail on specific areas, for instance through opportunity mapping exercises, it is likely that minor landscape features which still provide notable conservation benefit could also be incorporated within emerging parish-ecological-network. For example: graveyards, hedgerow networks public-open-space and gardens (particularly where wildlife-friendly features such as garden ponds exist) can all act as stepping-stone for wildlife. More detailed treatment within the Neighbourhood Plan, such as higher resolution mapping, ecological survey and establishing principals for positive management which aim to promote opportunities for wildlife will all contribute towards creating and maintaining a healthy and biodiverse natural environment.

Further information is available on request.

In **conclusion** the natural environment records for the parish of Hallow contain a number of assets which are both characteristic and integral to the local landscape. Opportunities to **conserve and restore** the characteristic natural heritage of this landscape (particularly the ancient woodlands and hedgerow trees, traditional orchards and all unimproved lowland meadows), should be considered a priority.

¹⁹ TCPA (2009) *Biodiversity Positive: Eco-towns Biodiversity Worksheet Advice to Promoters and Planners* December. Available online at www.tcpa.org.uk/Handlers/Download.ashx?IDMF=2e0ffaf8-24b1-45fe-a02f-505a06d72ff2, accessed on 26th March 2019.

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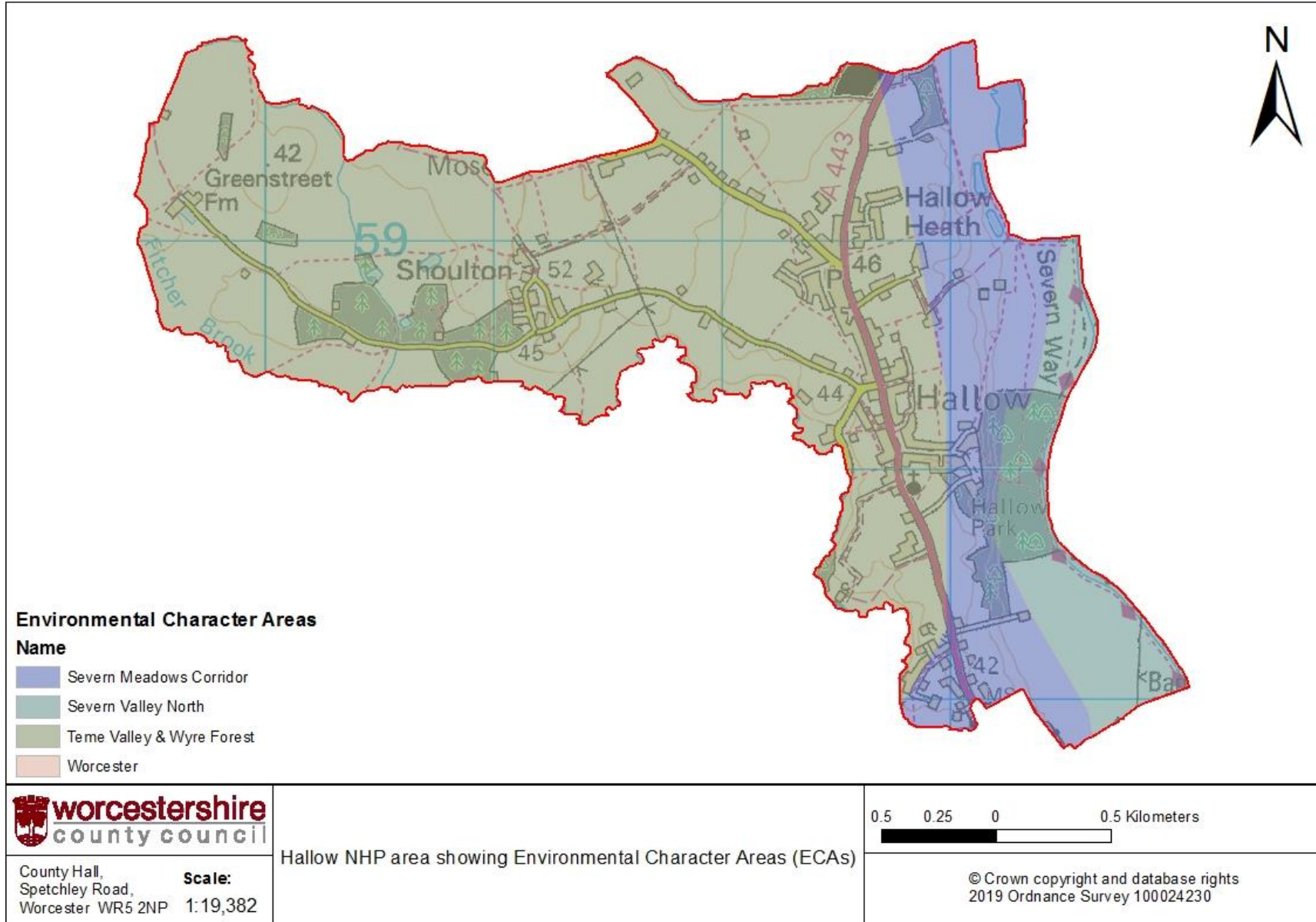


Figure 1. Environmental Character areas (ECAs) in Hallow NHP area

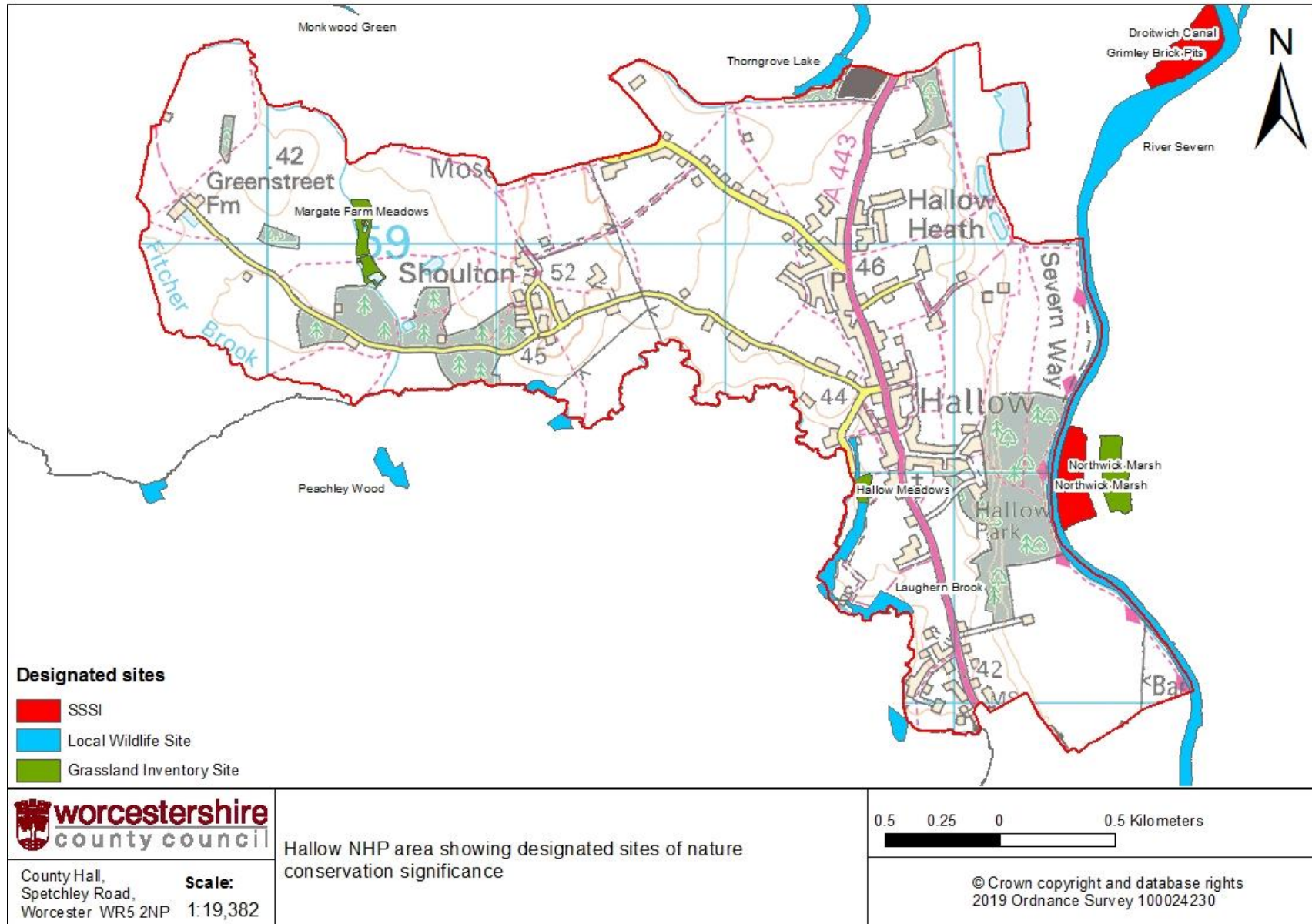


Figure 2. Designated sites of nature conservation significance in Hallow NHP area.

Nb. Hallow residents advise that the Hallow Meadows are degraded, now comprising scrubby woodland and amenity grassland.

Designated Site Citations

Non-statutory Sites

SITE No: SO75/44

| | |
|--|--------------------------------------|
| SITE NAME | LAUGHERN BROOK |
| NATIONAL GRID REFERENCE | SO779 585 |
| LINEAR SITE LIMITS (if appropriate) | North SO761 628 South SO834 526 |
| DATE OF LISTING | 28.09.1990 |
| DISTRICT COUNCIL (s) | Malvern Hills, Worcester City |
| PARISH | Rushwick, Hallow, Martley, Worcester |
| TOTAL AREA | N/A |
| LENGTH IF LINEAR | c21km |
| SWS HABITAT | Open water – flowing |
| NATIONAL BAP HABITATS | Rivers and streams, Wet Woodland |
| OTHER HABITATS OF IMPORTANCE | Semi-improved grassland |
| NATIONAL BAP SPECIES | Otter |
| OTHER SPECIES OF IMPORTANCE | Kingfisher |
| GENERAL DESCRIPTION | |
| <p>A major tributary of the River Teme, the Laughern Brook drains much of the west Worcestershire plain. It begins in a series of tiny feeder streams, occasionally ditched, running through a network of orchards and grasslands north west of Worcester. Here the brook is often modified but still forms an important wildlife corridor through an otherwise heavily managed landscape.</p> <p>Further downstream the brook maintains a relatively uniform structure with moderate flows and depth. Aquatic vegetation is reasonable but never abundant and the brook corridor is often tree lined, particularly with alders although there are fine willow pollards on some stretches. Through these central sections the brook often forms the principal wildlife corridor in otherwise intensively managed farmland.</p> <p>In its lower reaches the Laughern Brook flows through Worcester. Here it is frequently modified and there are problems with invasive species and occasional pollution incidents. Nevertheless the brook still forms an extremely valuable wildlife corridor through the city. It is often augmented by grasslands and small blocks of scrubby wet woodland (conforming to NVC classification W6b) which add to the value of the brook corridor. For the most part the aquatic and emergent vegetation is limited by shading from bankside trees but these, together with a number of more sizeable veteran trees associated with the brook corridor, add value to the habitat and provide roosting places for bats and breeding opportunities for a range of commoner birds.</p> <p>There are past records of kingfisher breeding on the brook and otters are known to use it.</p> <p>Parts of the site are designated as Local Nature Reserves by Worcester City Council.</p> | |

Figure 3. Laughern Brook LWS citation

| | |
|--|--|
| SITE NAME | RIVER SEVERN |
| NATIONAL GRID REFERENCE | SO847 548 |
| LINEAR SITE LIMITS (if appropriate) | North SO754 825, South SO881 327 |
| DATE OF LISTING | 28.09.1990 |
| DISTRICT COUNCIL (s) | Wyre Forest, Malvern, Wychavon, Worcester City |
| PARISH | Multiple |
| TOTAL AREA | N/A |
| LENGTH IF LINEAR | C70km |
| SWS HABITAT | Open water – flowing |
| NATIONAL BAP HABITATS | Rivers and streams |
| OTHER HABITATS OF IMPORTANCE | Woodland, marshland, grassland |
| NATIONAL BAP SPECIES | Otter |
| OTHER SPECIES OF IMPORTANCE | Salmon, club-tailed dragonfly |
| GENERAL DESCRIPTION | |
| <p>The River Severn is Worcestershire's biggest river and a major ecological corridor running north to south for the whole length of the county. Although it has been significantly modified below Stourport the river retains much of its natural form upstream of the town and exhibits the varied bed structure and flow of a more semi-natural channel. In places the aquatic vegetation is diverse although typically not abundant. Most of the river is tree lined, often with pollarded willows and alders and there are significant amounts of contiguous semi-natural habitat which augment the value of the watercourse itself, making the corridor extremely important in a county context.</p> <p>The Severn supports a rich and varied fauna including the rare club-tailed dragonfly, salmon and otters.</p> <p>Maps available on GIS.</p> | |

Figure 4. River Severn LWS citation

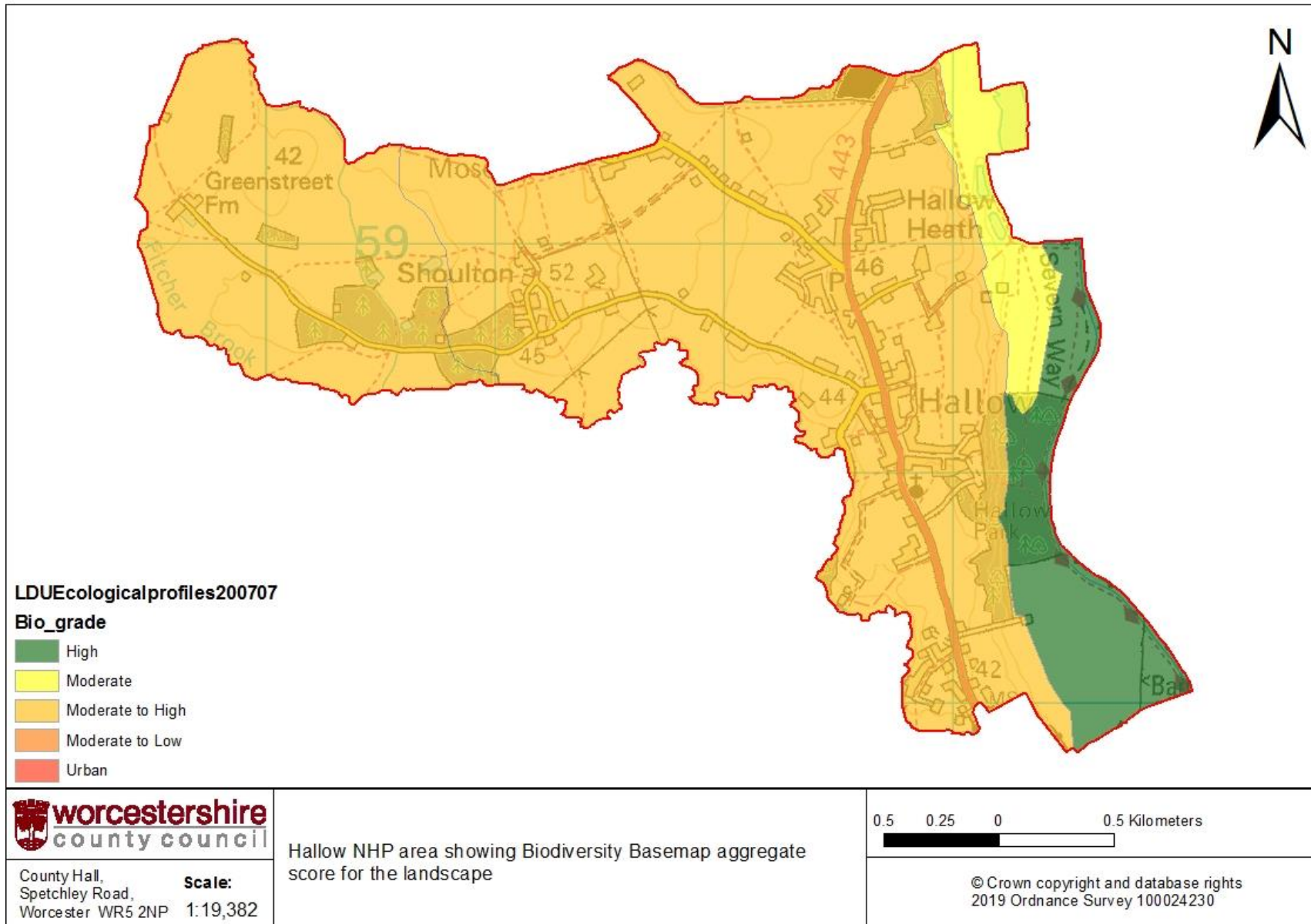


Figure 5. Biodiversity basemap giving aggregate scores for the landscape in Hallow NHP area

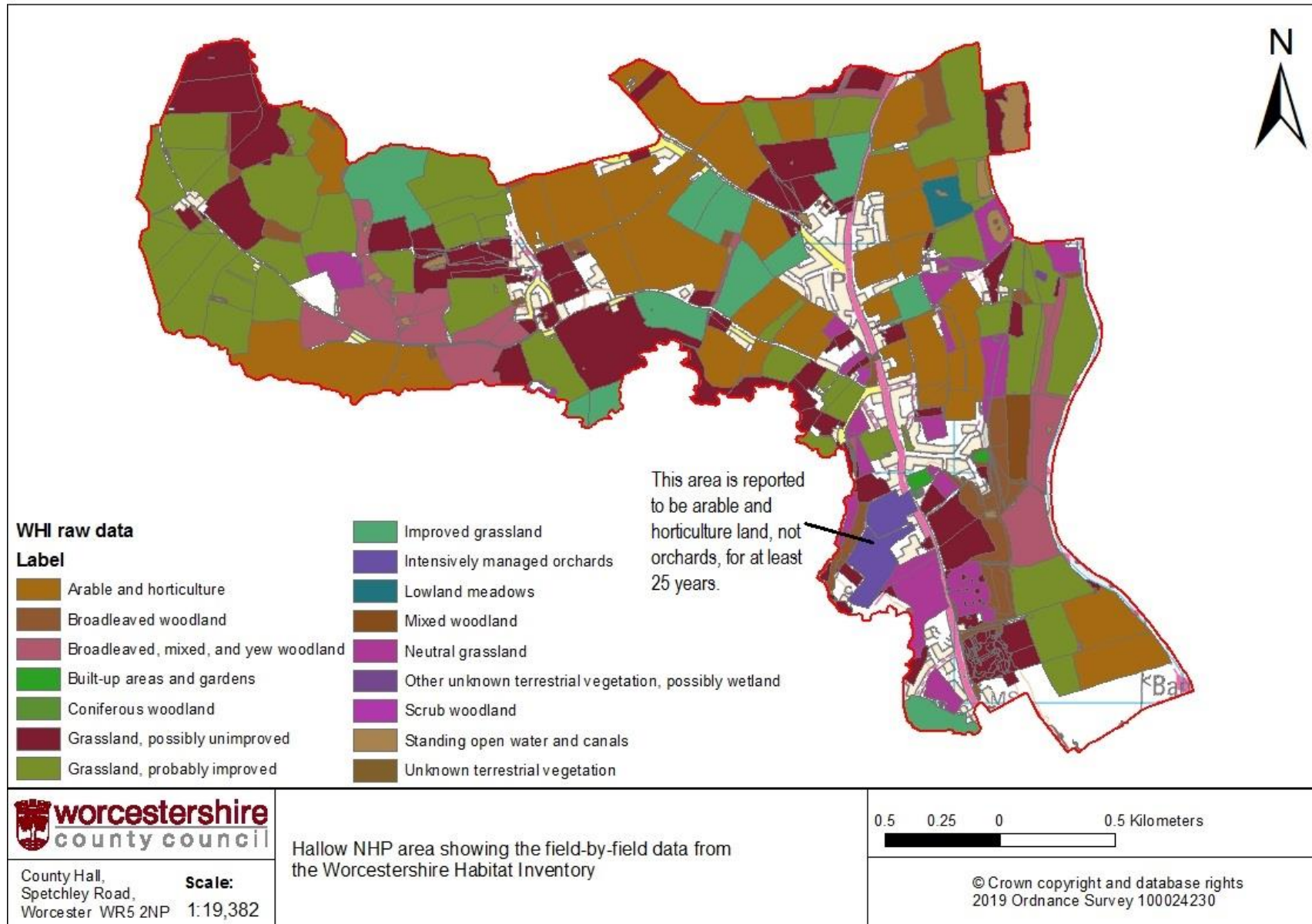


Figure 6. Habitat map for Hallow NHP area, from Worcestershire Habitat Inventory

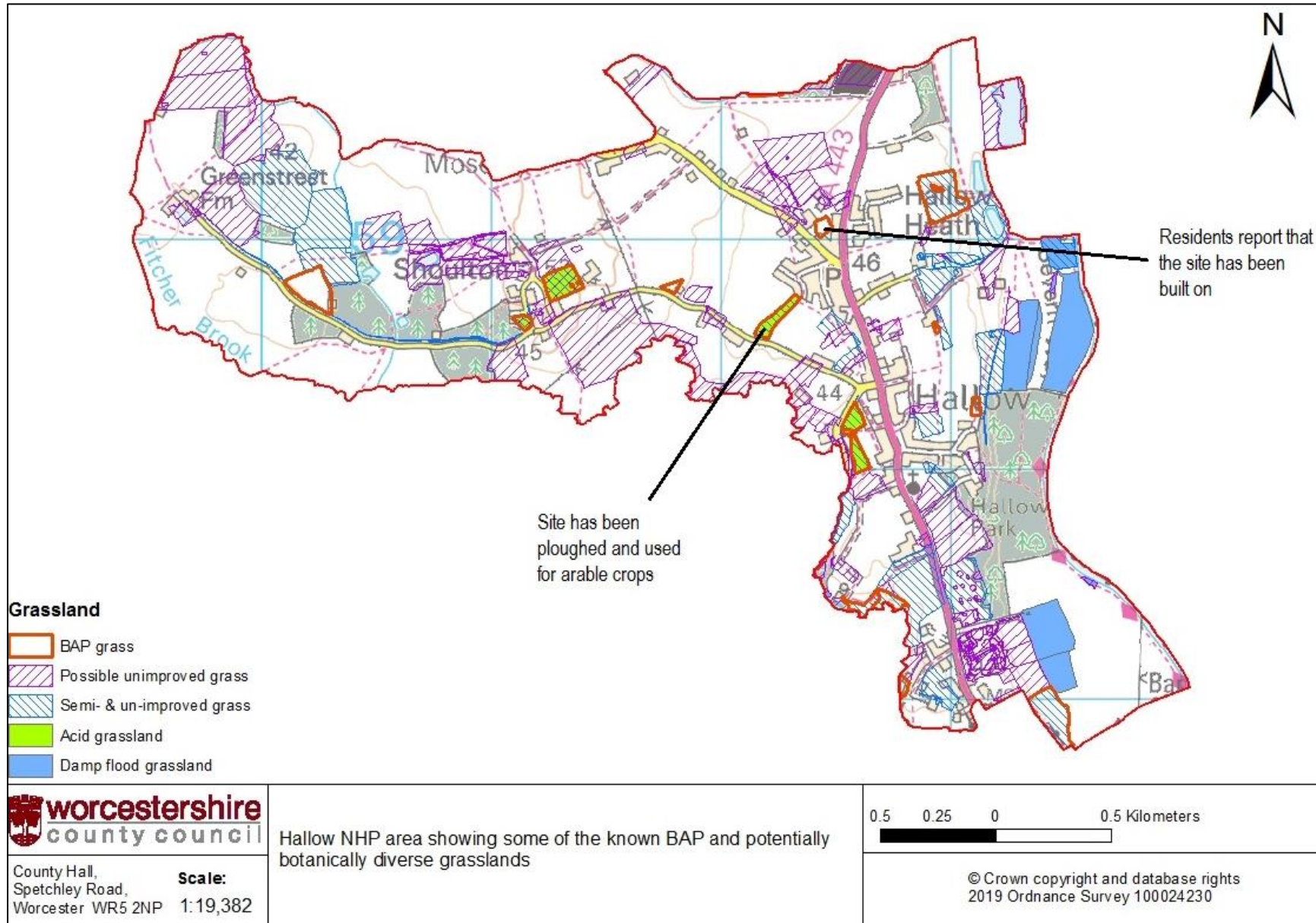


Figure 7. Valuable grasslands in Hallow NHP area

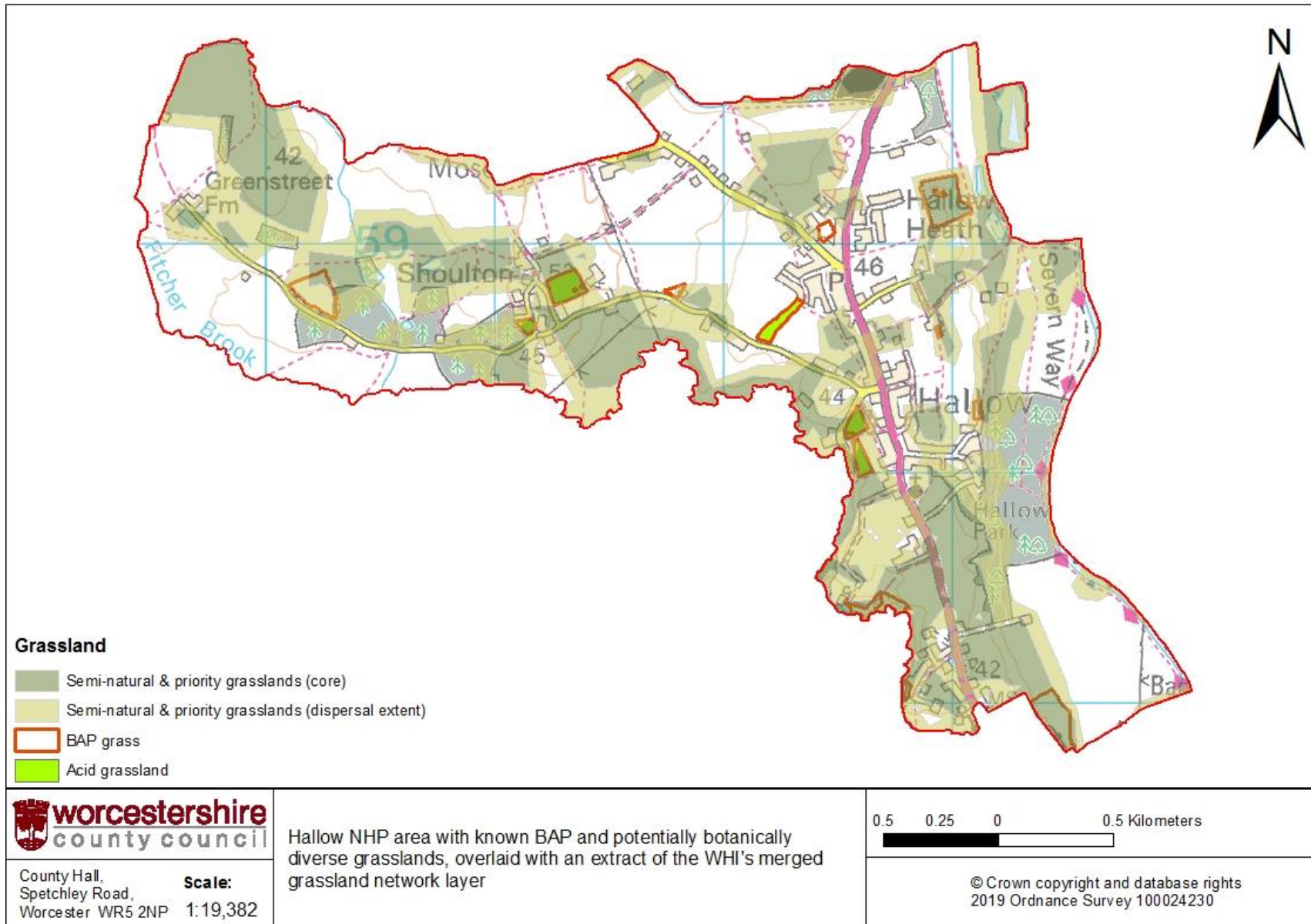


Figure 8. Core grassland and mean dispersal extents in Hallow NHP area

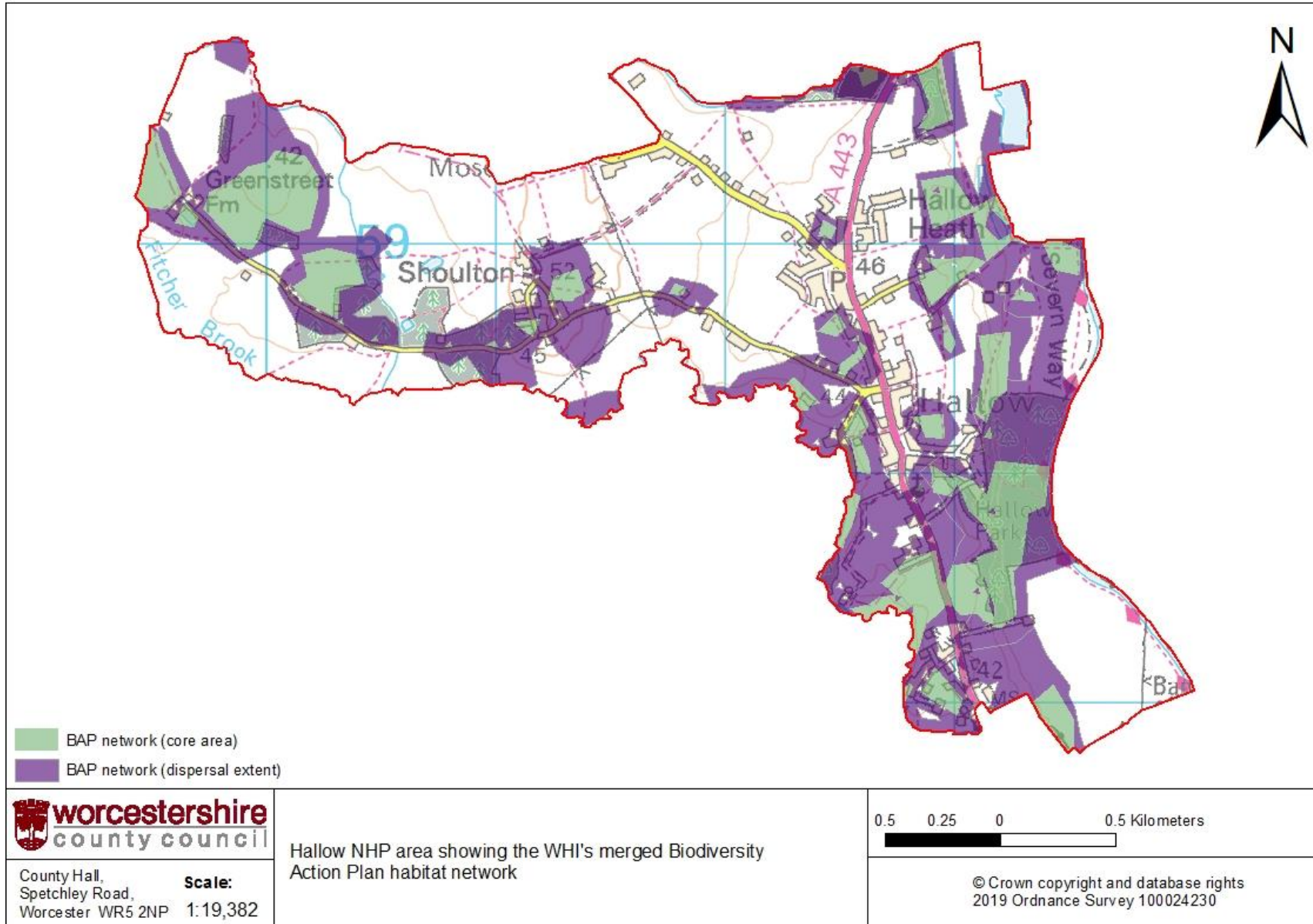


Figure 9. Biodiversity Action Plan habitat core areas and mean dispersal extents in Hallow NHP area

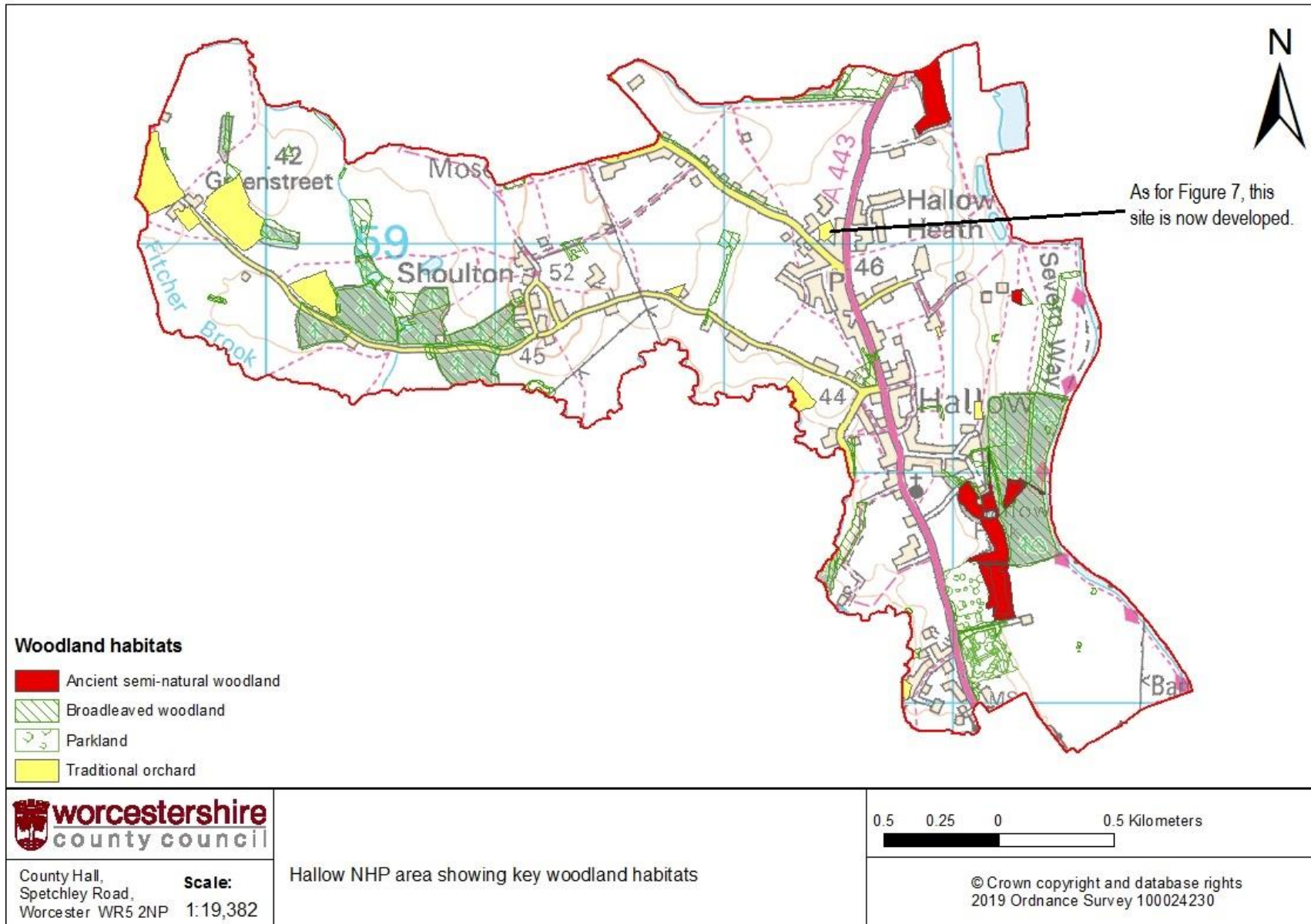


Figure 10. Key woodland habitats in Hallow NHP area

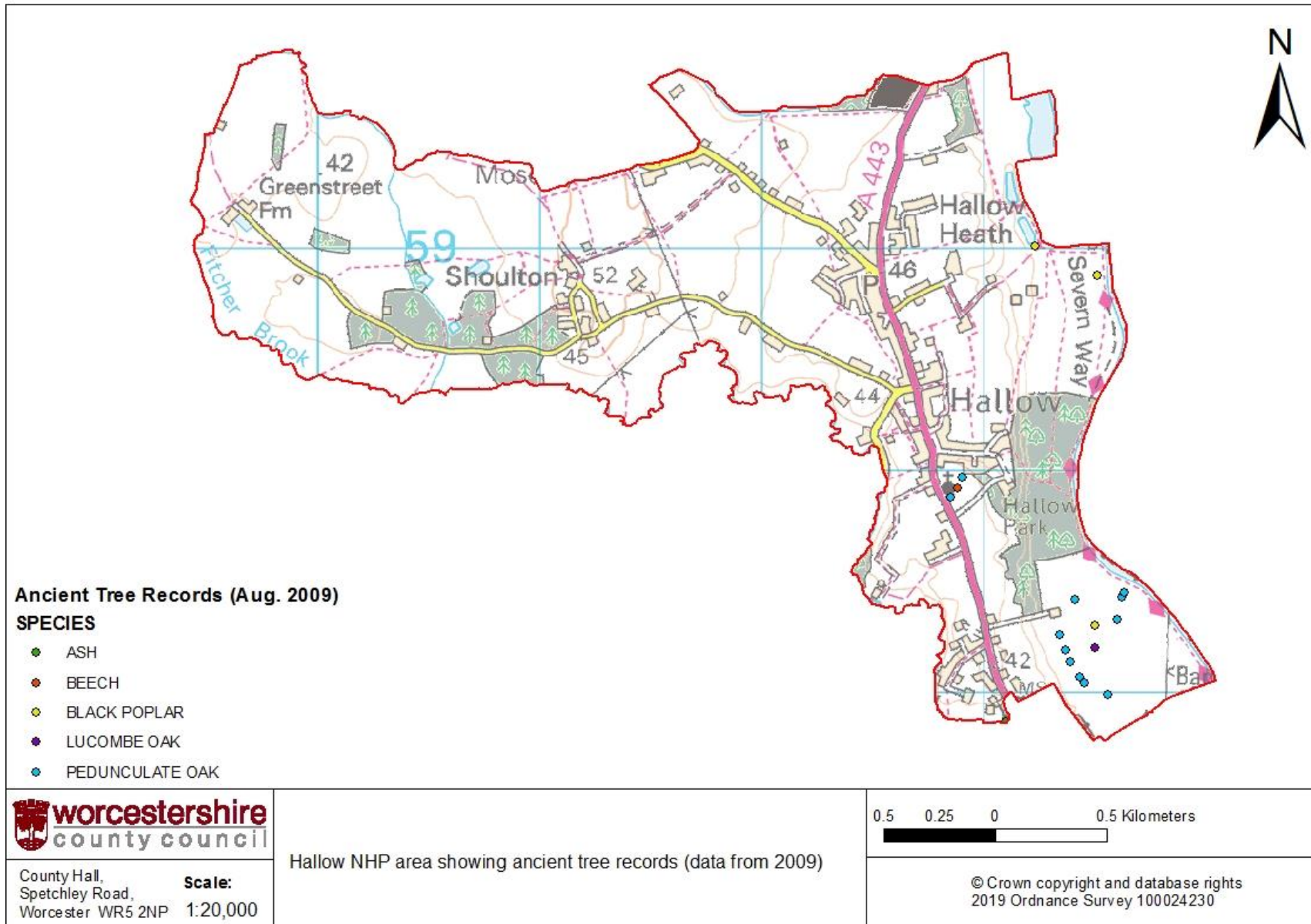


Figure 11. Ancient tree records for Hallow parish

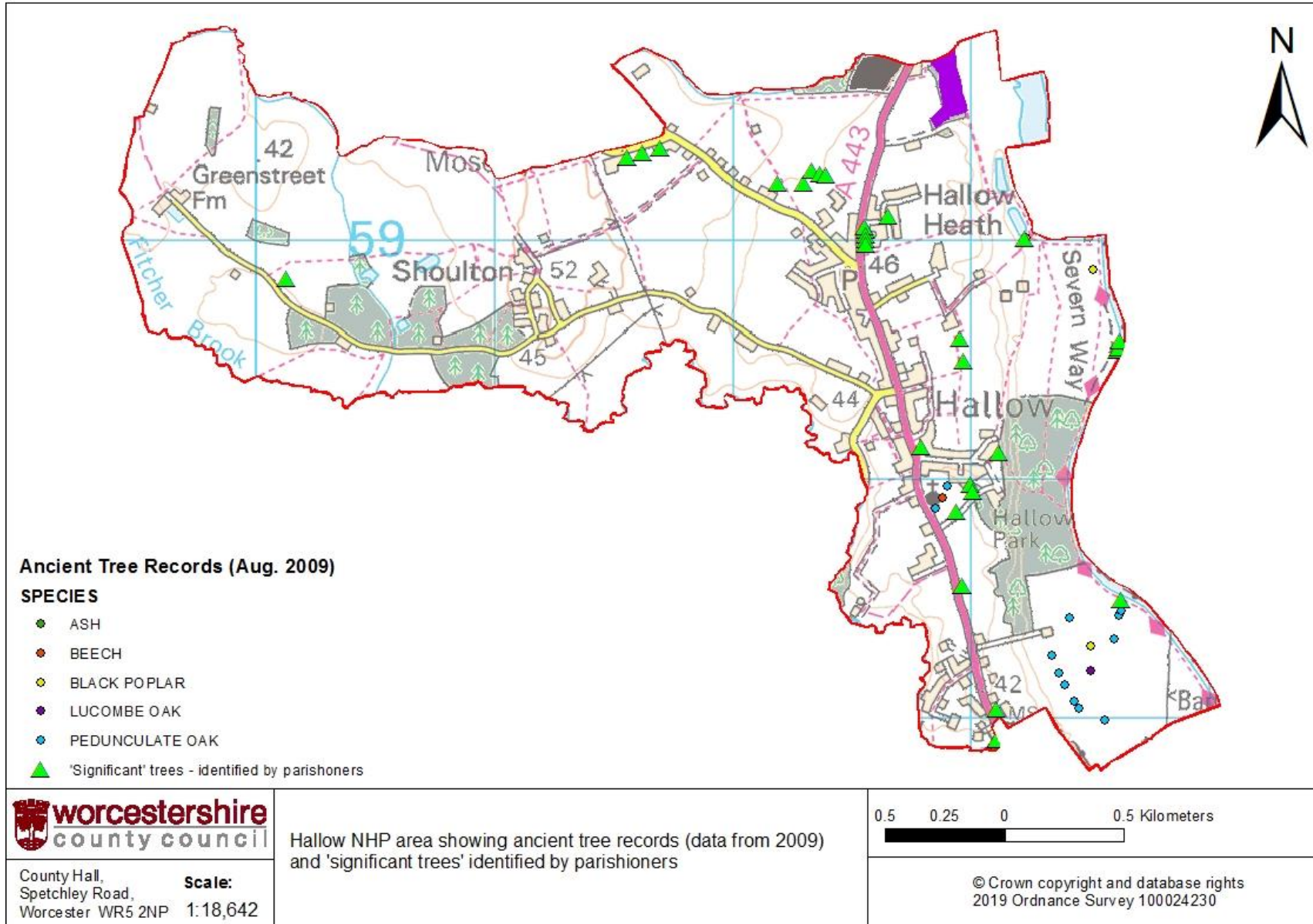


Figure 12. Ancient tree records and further significant trees identified by parishioners

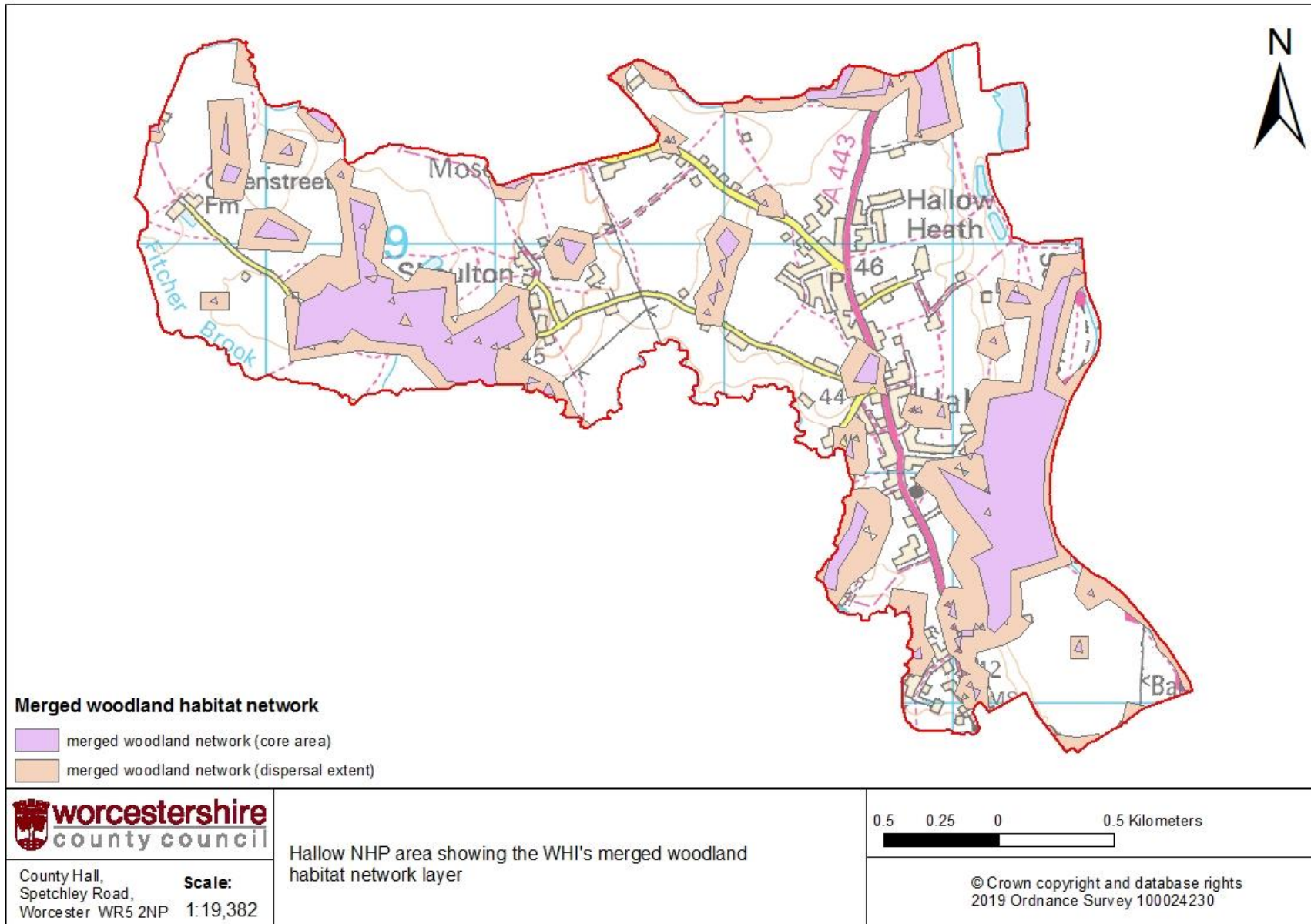


Figure 13. Woodland habitat core area and mean dispersal extent within Hallow NHP area

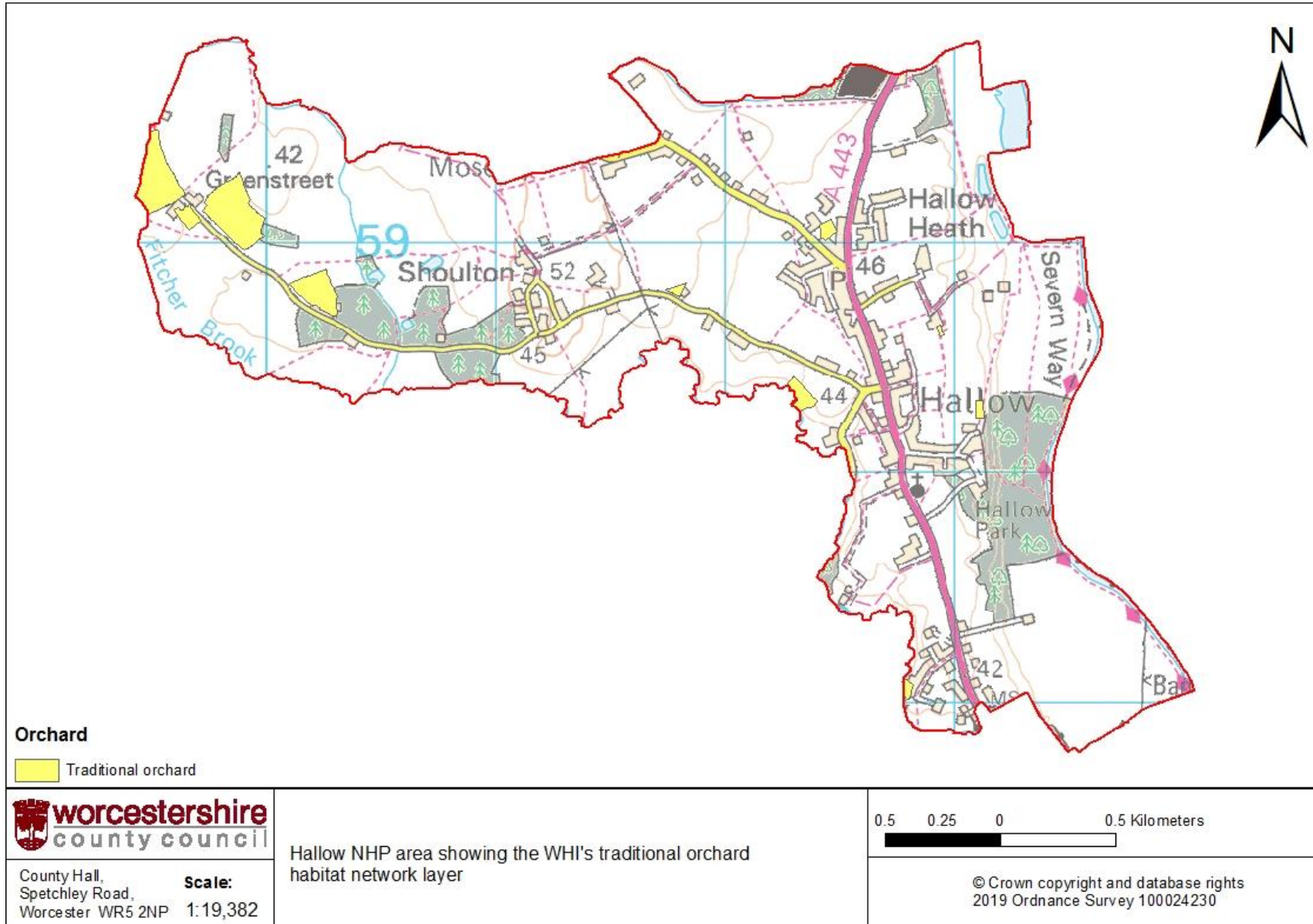


Figure 14. Traditional orchards in Hallow NHP area

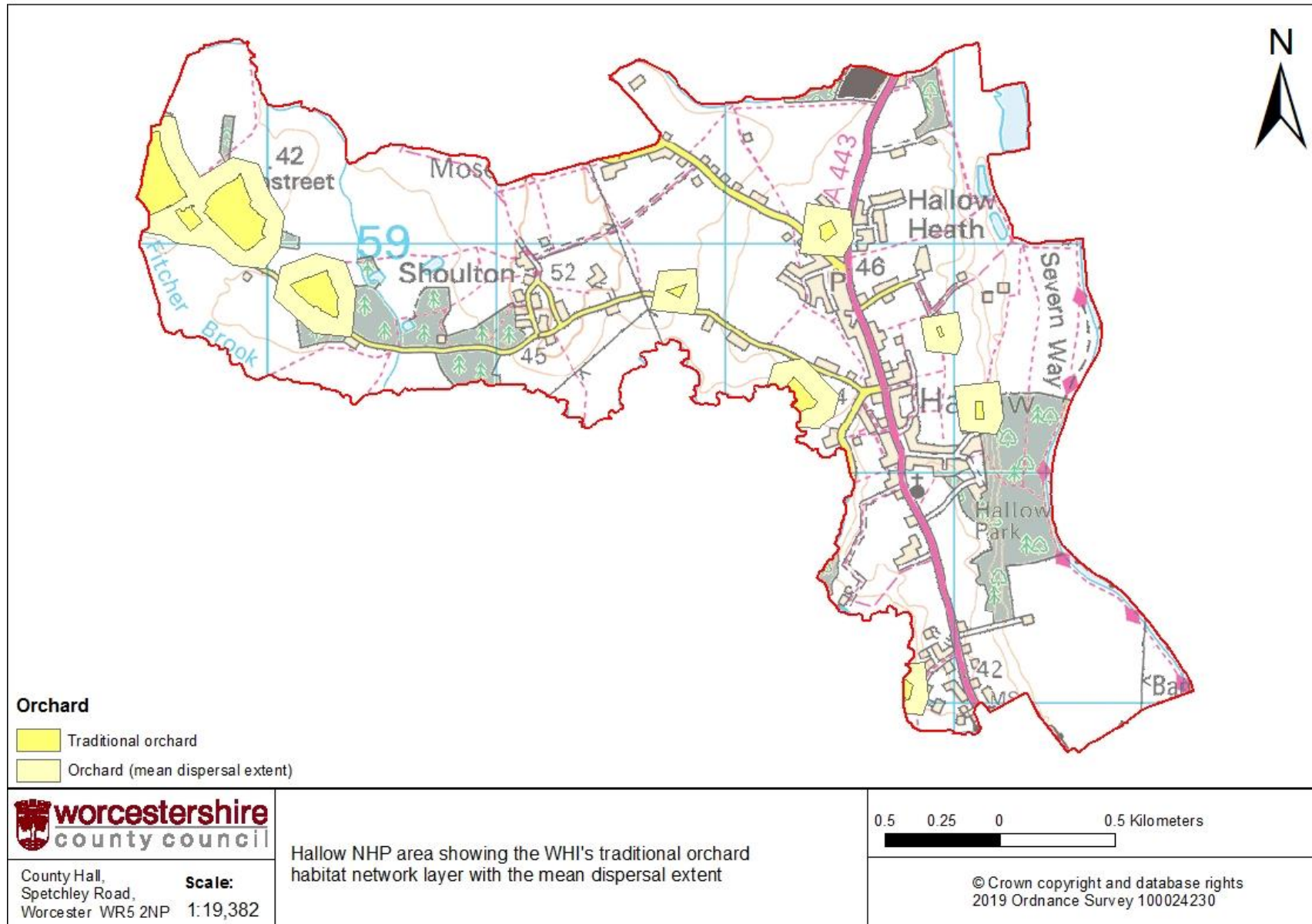


Figure 15. Orchard habitat core area and mean dispersal extent within Hallow NHP area

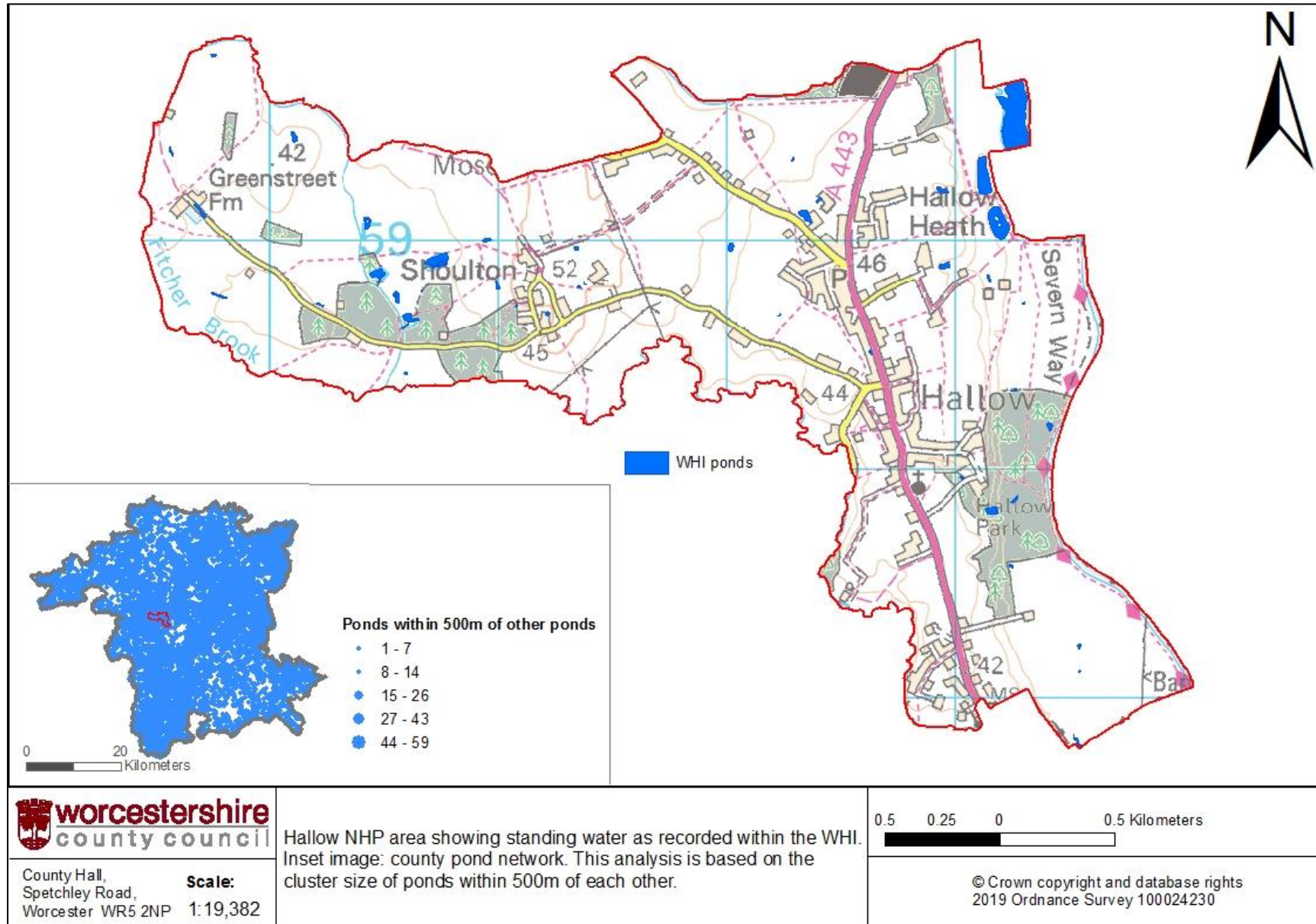


Figure 16. Ponds recorded in Hallow NHP area. Nb. this map has not been ground-truthed, it is based on interpretation of aerial images taken in 2005.

[Redacted – map available on request]

Figure 17. **REDACTED** – Worcestershire Biological Records Centre (WBRC) protected species records from Hallow NHP area

Protected Species Records

(Sensitive records redacted)

Table 1. Protected species records for Hallow NHP area, from WBRC

| ORDER | SCIENTIFIC NAME | COMMON NAME | LOCATION | DATE | COMMENTS | STATUS |
|----------------------------|---|--------------------------|------------------------|------------------------|--|------------|
| Horsetail | <i>Equisetum telmateia</i> | Great Horsetail | Grimley Camp Lane Pits | 29/06/2015 | Largely ID from size c.4ft high | Locally Nb |
| | | | | 29/06/2015 | Largely ID from size c.4ft high | Locally Nb |
| | <i>Equisetum fluviatile</i> | Water Horsetail | SO85 tetrad E | 06/07/1997 | | Locally Nb |
| | | | Grimley Marsh | 22/07/2002 | | Locally Nb |
| Flowering plant | <i>Achillea ptarmica</i> | Sneezewort | SO75 tetrad Z | 19/07/2001 | SE corner of pasture by footpath, 1 plant | Locally Nb |
| | <i>Astragalus glycyphyllos</i> | Wild Liquorice | Parkfield Lane, garden | 09/09/2000 | Prolific; front of house - ?introduction - adj. Laugherne Brook valley scarp, a former known wild location for species | Locally Nb |
| | <i>Bidens tripartita</i> | Trifid Bur-marigold | Grimley Marsh | 22/07/2002 | | Locally Nb |
| | <i>Campanula latifolia</i> | Giant Bellflower | River Severn | 14/06/1992 | Wooded river bank - several | Locally Nb |
| | <i>Carex disticha</i> | Brown Sedge | Hallow Flood Plain | Nov-99 | Ditch through alder plantation - occasional | Locally Nb |
| | <i>Carex muricata</i> ssp. <i>lamprocarpa</i> | Prickly Sedge | Hallow Churchyard | 20/11/1999 | 1 tussock | Locally Nb |
| | <i>Carex pseudocyperus</i> | Cyperus Sedge | SO85 tetrad E | 08/04/1993 | Field pond | Locally Nb |
| | | | River Severn | 29/07/1992 | 1 tussock | Locally Nb |
| | <i>Carpinus betulus</i> | Hornbeam | Thorngrove | Nov-99 | Woodland - trees | Locally Nb |
| | | | Tinkers Coppice | May-92 | Probably introduced | Locally Nb |
| | | | A443 | 09/09/2000 | Sapling on hedgebank | Locally Nb |
| | <i>Ceratophyllum submersum</i> | Soft Hornwort | Shoulton House Farm | 08/04/1993 | Field pond - abundant | Locally Nb |
| | <i>Epipactis helleborine</i> | Broad-leaved Helleborine | ██████████ | 14/06/1992 | ████████████████████ | Locally Nb |
| | <i>Frangula alnus</i> | Alder Buckthorn | Laughern Brook | 18/10/1992 | 2 bushes, probably planted | Locally Nb |
| <i>Helleborus foetidus</i> | Stinking Hellebore | Hallow | Nov-99 | Pavement - small clump | Nationally Scarce | |

| ORDER | SCIENTIFIC NAME | COMMON NAME | LOCATION | DATE | COMMENTS | STATUS |
|------------------------------------|-------------------------------------|----------------------------|-------------------------|--------------------|---|------------|
| Flowering plant | <i>Hyacinthoides non-scripta</i> | Bluebell | Hallow Heath | 26/05/2014 | | WCA |
| | | | | 26/05/2014 | | WCA |
| | | | | 13/05/2013 | | WCA |
| | | | | 13/05/2013 | | WCA |
| | <i>Isolepis setacea</i> | Bristle Club-rush | N of Green Street | 06/07/1997 | Marshy field - scattered | Locally Nb |
| | <i>Juncus compressus</i> | Round-fruited Rush | River Severn | 14/06/1992 | River edge - 1 clump | Locally Nb |
| | <i>Lepidium heterophyllum</i> | Smith's Pepperwort | Hallow sewage works | 1996 | | Locally Nb |
| | <i>Listera ovata</i> | Common Twayblade | 'Greenstreet' Wood | 08/04/1993 | 5-10 plants | Locally Nb |
| | <i>Luzula pilosa</i> | Hairy Wood-rush | Hallow Park | 14/06/1992 | | Locally Nb |
| | <i>Nuphar lutea</i> | Yellow Water-lily | Grimley | Nov-99 | Floodplain - pool - introduced / established | Locally Nb |
| | <i>Oenanthe aquatica</i> | Fine-Leaved Water-Dropwort | below Hallow Park | 14/06/1992 | c.5 plants, marsh | Locally Nb |
| | <i>Orchis mascula</i> | Early-purple Orchid | ██████████ | 08/04/1993 | ████████████████████ | Locally Nb |
| | <i>Pimpinella major</i> | Greater Burnet-saxifrage | Margate Farm Mdws | 04/06/1992 | | Locally Nb |
| | | | Broadheath - Hallow Rd | Nov-99 | Grassy roadside bank - scattered along 200m between Hallow Mill & Park Cottage - with <i>P. saxifraga</i> | Locally Nb |
| | <i>Rumex hydrolapathum</i> | Water Dock | Marsh below Hallow Park | 14/06/1992 | | Locally Nb |
| | <i>Rumex maritimus</i> | Golden Dock | Hallow Heath | 15/09/2013 | | Locally Nb |
| | <i>Rumex pulcher</i> | Fiddle Dock | N of Park Farm | Nov-99 | Grassland / pasture - 10-20 in several places towards N end of field, inc. nr old marl pit | Locally Nb |
| | <i>Salix triandra</i> | Almond Willow | SO85 tetrad E | 1997 | | Locally Nb |
| | <i>Sanguisorba minor ssp. minor</i> | Salad Burnet | Opp. Hallow Mill | Nov-99 | Roadside bank - several plants | Locally Nb |
| | <i>Scirpus sylvaticus</i> | Wood Club-rush | Thorngrove Pool | Nov-99 | Locally abundant | Locally Nb |
| <i>Scrophularia umbrosa</i> | Green Figwort | River Severn | Nov-99 | 1 plant; left bank | Locally Nb | |
| <i>Veronica anagallis-aquatica</i> | Blue Water-speedwell | Marsh below Hallow Park | 14/06/1992 | Several | Locally Nb | |

| ORDER | SCIENTIFIC NAME | COMMON NAME | LOCATION | DATE | COMMENTS | STATUS |
|---------------------------------|-------------------------------------|-----------------------------|-------------------------|------------|-------------------------------|--|
| Insect - beetle (Coleoptera) | <i>Megatoma undata</i> | <i>Megatoma undata</i> | Grimley | 05/05/2016 | | Notable B |
| | | | | 05/05/2016 | | Notable B |
| Insect - dragonfly (Odonata) | <i>Gomphus vulgatissimus</i> | Common Club-tail | R Severn, Northwick | 08/06/2016 | adult | WorcBAP |
| | | | River Severn, Northwick | 08/06/2016 | adult | WorcBAP |
| | | | | 18/05/2018 | | WorcBAP |
| | | | | 06/06/2011 | 3 in 30m | WorcBAP |
| | | | Worcester, River Severn | 25/05/1992 | 2-5 larval case, emerged | WorcBAP |
| | | | | 25/05/1992 | 6-20 larval case, emerged | WorcBAP |
| River Severn, Northwick | 06/06/2011 | | WorcBAP | | | |
| Insect - hymenopteran | <i>Bombus (Thoracombus) humilis</i> | Brown-banded Carder- bee | Sewage Works | 22/08/2008 | Grassland | NERC s.41 UKBAP |
| Insect - true fly (Diptera) | <i>Norellia spinipes</i> | <i>Norellia spinipes</i> | Hallow | 22/03/2015 | | Notable |
| | | | | 22/03/2015 | | Notable |
| Amphibian | <i>Bufo bufo</i> | Common Toad | Green Park, Hallow | 15/03/1997 | 3 Adults | WCA NERC s.41 UKBAP |
| | <i>Lissotriton vulgaris</i> | Smooth Newt | Oakleigh Ave, Hallow | 16/04/2017 | | WCA |
| | <i>Rana temporaria</i> | Common Frog | Oakleigh Ave, Hallow | 16/04/2017 | | WCA |
| | <i>Triturus cristatus</i> | Great Crested Newt | Church Lane, Hallow | 10/05/2011 | in garden, possibly sub-adult | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| Reptile | <i>Natrix natrix</i> | Grass Snake | Hallow | 28/05/2005 | brought in alive by cat | WCA NERC s.41 UKBAP |
| | | | Church Lane, Hallow | 10/05/2011 | juvenile in garden | WCA NERC s.41 UKBAP |
| | | | Tinker's Coppice Farm | 06/05/1992 | 2 Adult | WCA NERC s.41 UKBAP |
| Bird | <i>Alauda arvensis</i> | Skylark | Grimley | 23/04/2007 | | NERC s.41 Bird:Red |
| | <i>Calidris alpina</i> | Dunlin | Camp Lane Pits, Grimley | 17/05/2011 | 3 present | Bird:Red |
| | <i>Charadrius dubius</i> | Little Ringed Plover | Camp Lane Pits, Grimley | 17/05/2011 | 1 present | WCA |
| | <i>Charadrius hiaticula</i> | Ringed Plover | Camp Lane Pits, Grimley | 17/05/2011 | 6 | Bird:Red |

| ORDER | SCIENTIFIC NAME | COMMON NAME | LOCATION | DATE | COMMENTS | STATUS |
|--------------------------|-----------------------------|-------------------------|--------------------------------|------------|-----------------------------|-----------------------------|
| Bird | <i>Charadrius hiaticula</i> | Ringed Plover | | 17/05/2011 | 6 Present | Bird:Red |
| | | | | 18/04/2012 | 1 | Bird:Red |
| | | | | 18/04/2012 | 1 Present | Bird:Red |
| | <i>Cuculus canorus</i> | Cuckoo | Shoulton, Hallow | 09/05/2016 | 1 present | NERC s.41 UKBAP Bird:Red |
| | | | Hallow, Laugherne Brook | 28/04/2011 | Heard | NERC s.41 UKBAP Bird:Red |
| | | | | 02/05/2011 | Heard; 2 | NERC s.41 UKBAP Bird:Red |
| | <i>Emberiza schoeniclus</i> | Reed Bunting | Camp Lane Pits, Grimley | 17/05/2011 | Many | NERC s.41 UKBAP |
| | <i>Larus argentatus</i> | Herring Gull | Camp Lane Pits, Grimley | 17/05/2011 | 5 Present | Bird:Red |
| | <i>Linaria cannabina</i> | Linnet | Hallow | 05/06/2014 | 5 present | Bird:Red |
| | | | Grimley, new workings | 12/07/2007 | | Bird:Red |
| | <i>Passer domesticus</i> | House Sparrow | | 28/03/2017 | | NERC s.41 UKBAP Bird:Red |
| | | | Hallow | 05/06/2014 | 1 colony | NERC s.41 UKBAP Bird:Red |
| | | | Greenhill Lane, Hallow | 16/07/2013 | | NERC s.41 UKBAP Bird:Red |
| | <i>Turdus philomelos</i> | Song Thrush | Royal Oak Public House, Hallow | 07/06/2012 | | Bird:Red |
| <i>Turdus pilaris</i> | Fieldfare | Hallow | 03/09/2012 | | WCA Bird:Red | |
| <i>Vanellus vanellus</i> | Lapwing | Grimley | 10/04/2005 | 9 | NERC s.41 UKBAP Bird:Red | |
| | | Grimley, new workings | 22/05/2004 | On nest | NERC s.41 UKBAP Bird:Red | |
| | | Camp Lane Pits, Grimley | 17/05/2011 | 9 Present | NERC s.41 UKBAP Bird:Red | |
| Terrestrial mammal | <i>Erinaceus europaeus</i> | Hedgehog | Hallow | 23/06/2005 | live sighting | NERC s.41 UKBAP |
| | | | | 20/09/2005 | live sighting | NERC s.41 UKBAP |
| | | | | 23/06/2005 | live sighting | NERC s.41 UKBAP |

| ORDER | SCIENTIFIC NAME | COMMON NAME | LOCATION | DATE | COMMENTS | STATUS |
|--------------------|----------------------------|-------------|--|--------------------|---|----------------------------------|
| Terrestrial mammal | <i>Erinaceus europaeus</i> | Hedgehog | | 17/06/2003 | dead on A443 | NERC s.41 UKBAP |
| | <i>Lepus europaeus</i> | Brown Hare | Hallow | 12/04/2005 | live sighting | NERC s.41 UKBAP |
| | | | | 27/04/2005 | live sighting; juveniles | NERC s.41 UKBAP |
| | | | | 21/05/2005 | 1 Adult | NERC s.41 UKBAP |
| | <i>Lepus europaeus</i> | Brown Hare | Grimley (new workings) | 30/12/2006 | 1 Adult | NERC s.41 UKBAP |
| | | | Bevere, Worcester | 2003 | | NERC s.41 UKBAP |
| | <i>Lutra lutra</i> | Otter | Laugherne Brook, between Lower Broadheath & Hallow | 14/12/2010 | 2 large old spraints & 2 smaller ones all on same rock 10-15m d/s from bridge | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | | | | 20/09/2004 | 1 Dead | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | | | R Severn, Northwick | 07/03/2011 | Prints; mud bank under foot bridge | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | <i>Meles meles</i> | Badger | ██████████ | 01/02/2004 | ██████████ | PBA |
| | | | | 06/01/2005 | ██████████ | PBA |
| | | | ██████ | 06/02/2005 | ██████████ | PBA |
| | | | | 09/07/2005 | ██████████ | PBA |
| | | | ██████████████████ | 16/05/2014 | ██████████ | PBA |
| | | | ██████ | 05/06/2014 | ██████████ | PBA |
| | | | | 30/03/2010 | ██████ | PBA |
| | | | ██████████ | 22/09/2010 | ██████████ | PBA |
| ██████ | | | 01/09/2012 | ██████████████████ | PBA | |
| ██████████ | | | 30/03/2004 | | PBA | |
| ██████ | | | 30/03/2004 | | PBA | |
| ██████████ | 30/03/2004 | ██████████ | PBA | | | |

| ORDER | SCIENTIFIC NAME | COMMON NAME | LOCATION | DATE | COMMENTS | STATUS |
|--------------------|----------------------------------|-----------------------------|--------------------------------------|-----------------------------|---|----------------------------------|
| Terrestrial mammal | <i>Mustela putorius</i> | Polecat | Hallow | 14/07/2005 | dead on road | NERC s.41 UKBAP |
| | | | Hallow Park | Apr-00 | dead on road | NERC s.41 UKBAP |
| | | | Hallow | 2000 | | NERC s.41 UKBAP |
| | <i>Myotis</i> | Unidentified Myotis Bat | Rose Cottage, Shoulton Lane | 05/05/2016 | Heard commuting | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | | | Hallow | 12/05/2016 | Audio record, Foraging pass | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | <i>Myotis nattereri</i> | Natterer's Bat | The Old Rectory, Church Lane, Hallow | May - Jun 2011 | 3 roosting. Bat detector & Batsound used | WCA ECH4 WorcBAP |
| | <i>Nyctalus leisleri</i> | Leisler's Bat | Greenhill Lane, Hallow | 20/08/2013 | Seen & heard echolocating | WCA ECH4 WorcBAP |
| | <i>Nyctalus noctula</i> | Noctule | Rose Cottage, Shoulton Lane | 05/05/2016 | Heard commuting | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | | | Greenhill Lane, Hallow | 20/08/2013 | Seen & heard echolocating | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | | | The Old Rectory, Church Lane, Hallow | May - Jun 2011 | 1 commuting over site. Bat detector & Batsound used | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | <i>Pipistrellus pipistrellus</i> | Common Pipistrelle | Rose Cottage, Shoulton Lane | 05/05/2016 | Seen & heard foraging around site | WCA ECH4 WorcBAP |
| | | | | 19/05/2016 | 1 re-entering crack in building. Others seen & heard foraging around site | WCA ECH4 WorcBAP |
| | | | Royal Oak Public House, Hallow | 01/08/2012 | | WCA ECH4 WorcBAP |
| | | | | 16/08/2012 | | WCA ECH4 WorcBAP |
| | | | Greenhill Lane, Hallow | 20/08/2013 | Seen/heard echolocating, roosting & foraging on site | WCA ECH4 WorcBAP |
| Hallow | | | 02/05/2016 | Audio record, Foraging pass | WCA ECH4 WorcBAP | |
| | 12/05/2016 | Audio record, Foraging pass | WCA ECH4 WorcBAP | | | |

| ORDER | SCIENTIFIC NAME | COMMON NAME | LOCATION | DATE | COMMENTS | STATUS |
|--------------------|----------------------------------|----------------------|--------------------------------------|----------------|--|----------------------------------|
| Terrestrial mammal | <i>Pipistrellus pipistrellus</i> | Common Pipistrelle | The Old Rectory, Church Lane, Hallow | May - Jun 2011 | 6; foraging activity. Bat detector & Batsound used | WCA ECH4 WorcBAP |
| | | | Winterbourne Dr., Worcester | 21/07/2003 | Large roost judging by droppings. | WCA ECH4 WorcBAP |
| | <i>Pipistrellus pygmaeus</i> | Soprano Pipistrelle | Rose Cottage, Shoulton Lane | 05/05/2016 | Seen & heard foraging around site | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | | | | 19/05/2016 | Seen & heard foraging around site | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | | | Royal Oak Public House, Hallow | 01/08/2012 | | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | | | Greenhill Lane, Hallow | 20/08/2013 | Seen/heard echolocating, roosting & foraging on site | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | | | Hallow | 02/05/2016 | Audio record, Foraging pass | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | <i>Pipistrellus pygmaeus</i> | Soprano Pipistrelle | Hallow | 12/05/2016 | Audio record, Foraging pass | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | | | | 02/05/2016 | Audio record; Foraging pass | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | | | The Old Rectory, Church Lane, Hallow | May - Jun 2011 | 3 roosting. Bat detector & Batsound used | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | <i>Plecotus auritus</i> | Brown Long-eared Bat | Countryside, Hallow | 22/08/2012 | Corpse in back garden, suspected cat kill | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | | | Hallow | 15/10/2012 | Dead on back lawn, suspected cat kill | WCA NERC s.41 UKBAP ECH4 WorcBAP |
| | | | Greenhill Lane, Hallow | 20/08/2013 | Roosting on site | WCA NERC s.41 UKBAP ECH4 |

| ORDER | SCIENTIFIC NAME | COMMON NAME | LOCATION | DATE | COMMENTS | STATUS |
|--------------------|-------------------------|----------------------|-----------------------------|------------|--|--|
| | | | | | | WorcBAP |
| Terrestrial mammal | <i>Plecotus auritus</i> | Brown Long-eared Bat | Winterbourne Dr., Worcester | 21/07/2003 | Large roost, predominantly pipistrelles with some BLE judging by droppings | WCA NERC s.41 UKBAP ECH4 WorcBAP |

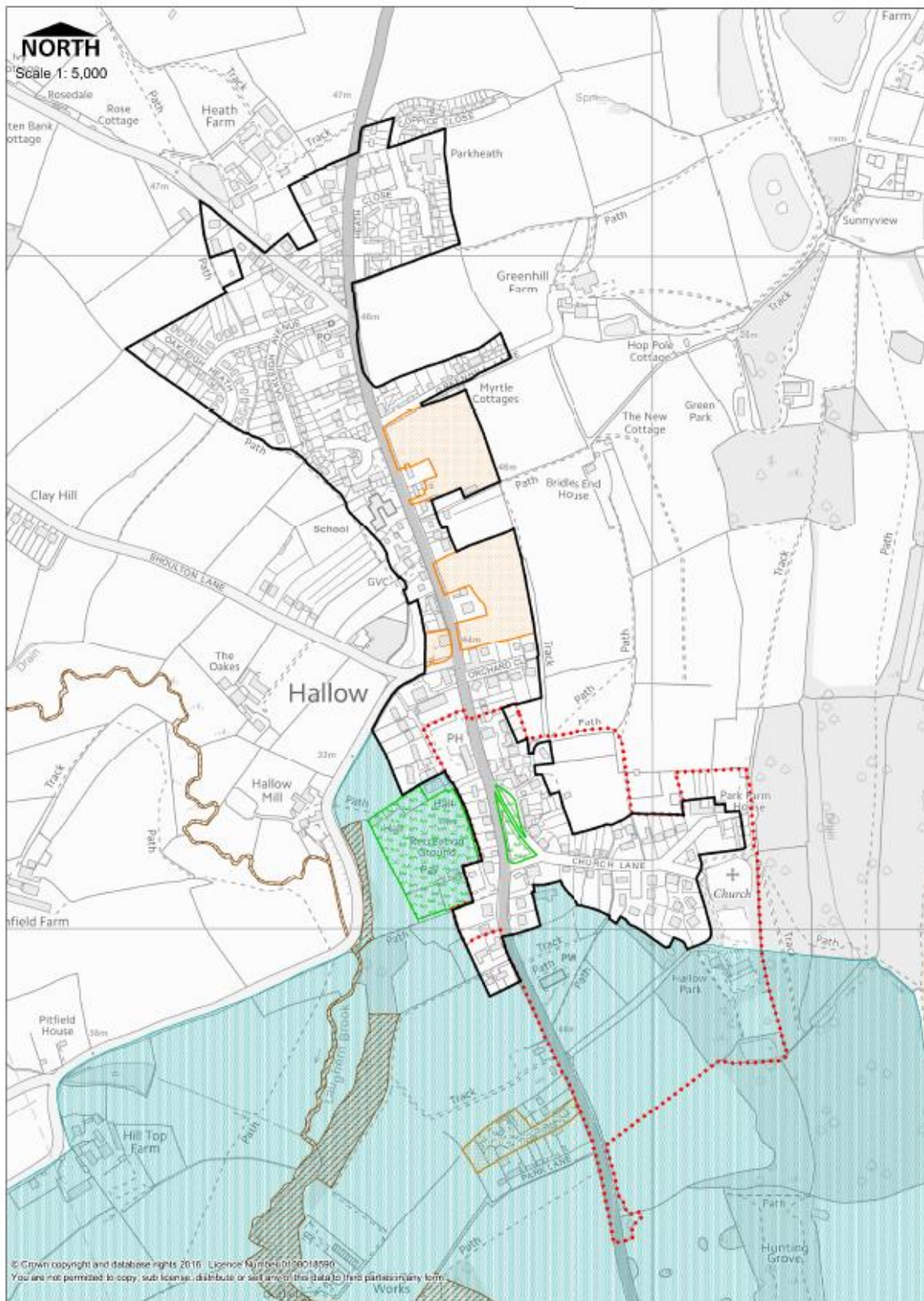


Figure 18. Allocated sites in Hallow in the SWDP

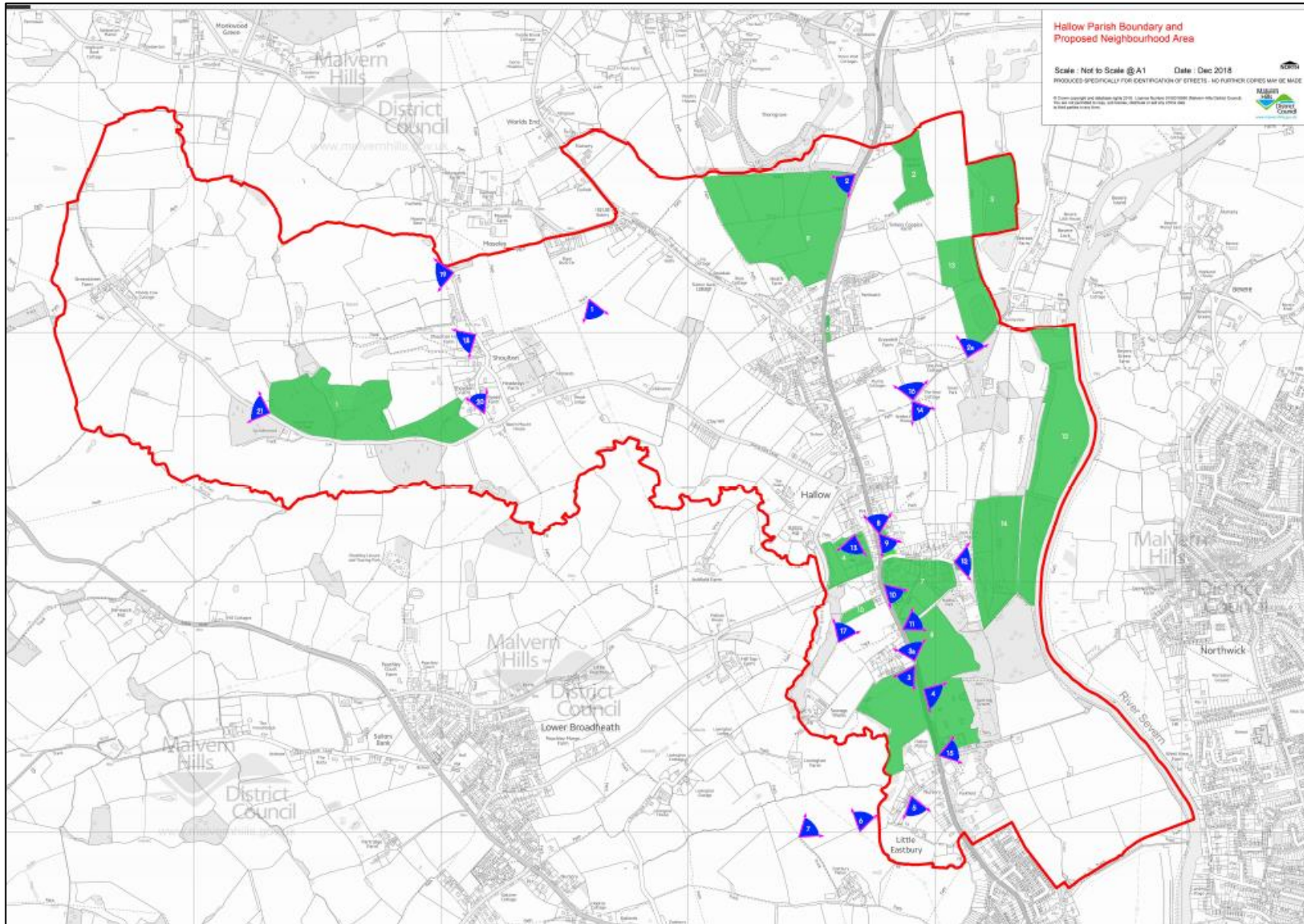


Figure 19. Green spaces and views in Hallow parish

Woodland Opportunities Map: Ancient woodland landscapes and restoration areas

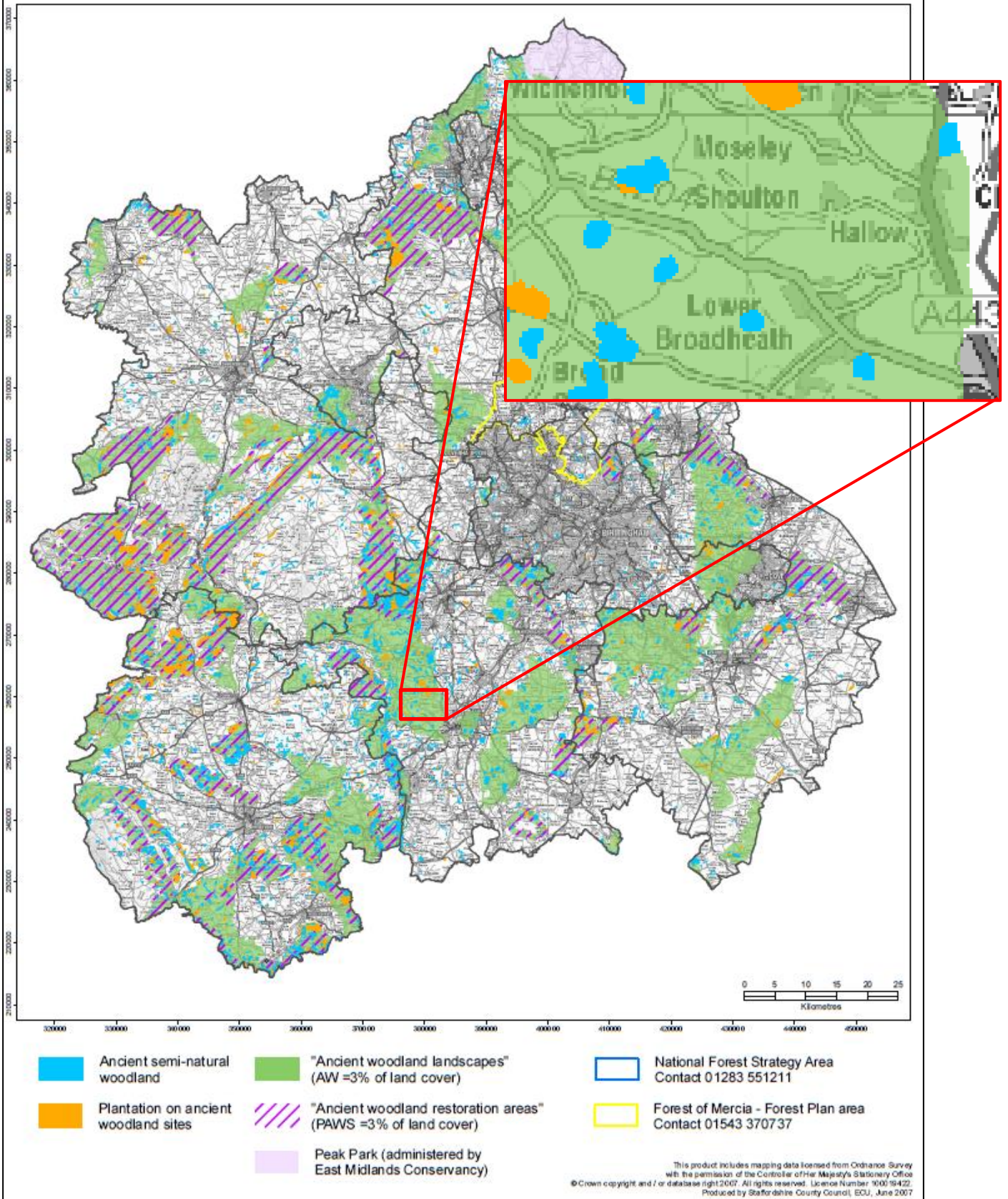


Figure 20. Forestry Commission, 2007. *Woodland Opportunities Map: Ancient woodland landscapes and restoration areas* (no longer available online)

5 Glossary

Axiophytes

"Worthy plants" – plants of particular interest to botanists, indicators of habitat considered important for conservation (e.g. ancient woodland, clear water, species-rich meadows).

Core area

The mapped area of that habitat type – e.g. grassland

Dispersal extent

A buffer zone surrounding core areas, that represents the likely average maximum extent that key species characteristic of that habitat might travel, for example in the process of finding a mate or in dispersing seed.

Forest Smallholdings and Dwellings

An intimate, densely settled landscape characterised by strings of wayside cottages and associated smallholdings. These nestle within a small-scale matrix of pastoral fields and narrow interlocking lanes, usually defined by prominent dense hedges with hedgerow trees. The consistency of human activity in these distinctive, small scale landscapes has resulted in a unified, palpably domestic character (Worcestershire County Council, Landscape Character Assessment).

Merged woodland

A layer in the habitat maps showing all types of tree cover merged together.

Principal Timbered Farmlands

A settlement pattern in which farmsteads and strings of wayside dwellings are associated with a low to moderate density of dispersal.

Principal Wooded Hills

An upstanding, wooded landscape with a sloping, in places steeply undulating topography, often on the edge of higher ground. This is a landscape of large, irregularly shaped ancient woodlands and wooded streamlines, typically forming an interlocking pattern with surrounding hedged fields. The woodlands are a key visual element within the landscape (Worcestershire County Council, Landscape Character Assessment).

Settled Farmlands

A small- to medium-scale, settled agricultural landscape of scattered farms, relic commons and clusters of wayside dwellings. These built features are linked by a network of narrow, winding lanes which nestle within a matrix of hedged fields. Tree cover is largely restricted to thinly scattered hedgerow trees and groups of trees around dwellings. The land is primarily one of mixed farming (Worcestershire County Council, Landscape Character Assessment).

Timbered Plateau Farmlands

A varied, mixed farming land-scape of hedged fields, scattered farms, woods and wooded valleys associated with upstanding areas of undulating relief. The landform conveys a sense of strength and dominance which tends to override the pattern of tree cover and fields. Variations in landform within this landscape create a changing sequence of visual perspectives, ranging from open vistas on plateau summits to more secluded scenes along valley bottoms (Worcestershire County Council, Landscape Character Assessment).

Wooded Estatelands

A large-scale, wooded agricultural landscape of isolated brick farmsteads, clusters of way-side dwellings and occasional small estate villages. Key visual elements in this landscape are the many large, irregularly shaped ancient woodlands, often prominently situated on low crests. It is a landscape that, due to its scale, lacks intimacy and can appear rather functional (Worcestershire County Council, Landscape Character Assessment).

Wooded Forest

A landscape dominated by dense tree cover, predominately woodland of ancient character, effectively blocking all but immediate short distance views. It is essentially unsettled although occasional wayside cottages occur, often with adjacent small fields of assart origin. This is an uncomplicated land-scape where the unrelenting mass of woodland and restricted views creates a strong character which can feel overwhelmingly remote and con-fined (Worcestershire County Council, Landscape Character Assessment).