East Staffordshire Biodiversity Opportunity Mapping

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Contents

Partners in the mapping exercise included:

Staffordshire Ecological Record

Executive Summary

Biodiversity Opportunity maps are developed to show where priority habitats could be enhanced, restored or created in a particular area, county or region as a basis from which to develop policies and targets.

The landscape-scale approach to nature conservation and the importance of having coherent and resilient ecological networks, identified via biodiversity mapping, were highlighted as key recommendations of the Making Space for Nature report (Lawton *et al*, 2010).

The Biodiversity Opportunity Map encompasses the entire East Staffordshire borough, which covers an area of approximately 38,880 hectares in total. Due to the large size of the area, the borough was considered in terms of its ecological character. During the mapping process, elevation, topography, landscape, geology and natural processes such as river systems were considered.

The knowledge of local ecologists and representatives from local organisations, in partnership with the Borough Council, was sought, and was key to identifying and fine tuning the Biodiversity Opportunity zones.

Eight biodiversity opportunity zones were created within the borough of East Staffordshire; Rivers, Canals & Streams, Central Heaths and Woods, Needwood Woods and Parkland, Species-rich Farmland, Farmland, Churnet Valley Woodlands, Limestone and Primary Urban,

The biodiversity opportunity map for the borough of East Staffordshire will form an essential component of a planning officer's checklist in establishing how a planning proposal can contribute appropriate maintenance, enhancement or restoration for local biodiversity. In addition, the map can inform the targeting of agri-environment schemes, the compilation of Neighbourhood Development Plans and development of landscape-scale initiatives.

1 Introduction

Biodiversity Opportunity maps are developed to show where priority habitats could be enhanced, restored or created in a particular area, county or region as a basis from which to develop policies and targets. They provide local authorities and partners with vital information in order to support a robust, climate-proof, long-term landscape-scale vision for the benefit of the natural environment, society and the economy.

Any partnerships that produce these biodiversity opportunity maps must base such work on sound, ecological principles and utilise currently available material. Information available to inform biodiversity opportunity mapping will often be incomplete; limitations of the data should be understood, but not prevent biodiversity opportunity mapping taking place. (Catchpole, 2006; Parker, 2012).

This work was undertaken in partnership with representatives from a number of different organisations including Staffordshire Wildlife Trust (SWT), Staffordshire County Council (SCC), East Staffordshire Borough Council (ESBC), Staffordshire Biodiversity Action Plan (SBAP) and the Environment Agency (EA).

The mapping and report compilation was carried out in January and February 2013.

2 Methodology

Firstly, focus was aimed at the key issues partners had or wanted to develop to ensure the biodiversity opportunity map was adequately informed about them. This involved collating and mapping information about areas that could be enhanced and areas that need protection.

The mapping was based on a landscape characterisation framework to package biodiversity information, and site-based information to indicate the degree of functional connectivity between sites. This strategic approach used a combination of landscape characterisation information to set broad environmental objectives. (Catchpole, 2006).

The work relied on widely available information sources that included NE's National Character Areas (NCAs) and habitat inventories such as the Ancient Woodland Inventory (AWI), Ecosystem Action Plan areas (EAPs), information from Staffordshire Ecological Record (SER) including the protected and BAP species inventory, UK BAP priority habitat data, various habitat mapping project data and the Local Sites systems (Local Nature Reserves (LNRs) and Regionally Important Geological/Geomorphological Sites (RIGS)), Staffordshire Local Sites Partnership Local Wildlife Site (LWS) surveys, Central Rivers Initiative (CRI) habitat mapping, SCC water meadows maps, historic field pattern maps and Ecological Characterisation of Staffordshire, NE/Forestry Commission Agri-environment and Woodland Grant Schemes and local ecologists and experts.

A full list of the datasets used as part of the evidence base for the mapping process are listed below:

Central River Initiative *Habitat Mapping* (2006)
Central Rivers Initiative *Biodiversity Opportunity Mapping* (2013)
Staffordshire Local Sites Partnership *Local Wildlife Site Surveys* (1996-2012)
Staffordshire Ecological Record *UKBAP Priority Habitat Data*
Staffordshire Ecological Record *Protected and UK/SBAP Species Inventory*

Natural England *Habitat Inventories*
Natural England *Agri-environment Schemes* (1991-2012)
Forestry Commission *Woodland & English Woodland Grant Schemes* (1991-2012)
Weaver Hills Project *Habitat Mapping* (2005)
Staffordshire Biodiversity Action Plan, Third Edition (2010)
Staffordshire County Council *Water Meadows Map*
Staffordshire County Council *Historic Field Pattern Maps*
Staffordshire County Council *Ecological Characterisation of Staffordshire*

2.1 Landscape-scale and the Big Picture

The landscape-scale approach to nature conservation and the importance of having coherent and resilient ecological networks, identified via biodiversity mapping, were highlighted as key recommendations of the Making Space for Nature report (Lawton *et al*, 2010).

Ecological networks have become widely recognised as an effective response to conserve wildlife in environments that have become fragmented by human activities. An ecological network comprises a suite of high quality sites which collectively contain the diversity and area of habitat that are needed to support species and which have ecological connections between them that enable species, or at least their genes, to move (Lawton *et al*, 2010)

Some of the recommendations concerning the planning for biodiversity from Making Space for Nature were adopted in the National Planning Policy Framework (NPPF) (Department for Communities and Local Government, 2012).

NPPF highlights the importance of landscape-scale conservation. Bullet point 117 (page 27) of the NPPF, makes reference to planning for biodiversity at a landscape-scale across local authority boundaries and connecting international/national/locally designated sites of biodiversity importance, and

areas identified by local partnerships for habitat creation or restoration (Department for Communities and Local Government, 2012).

The current biodiversity opportunity mapping encompasses the entire East Staffordshire borough, which covers an area of approximately 38,880 hectares in total. Due to the large size of the area, the borough was considered in terms of the geographical distribution of habitats and their accompanying species. During the mapping process, elevation, topography, landscape, geology and natural processes such as river systems were considered. All of these factors influence the distribution of wildlife and natural features. The NCAs and EAP areas were essential resources for this strategic landscape-scale approach as they provide a method that is used to classify, describe and understand the evolution and physical and cultural characteristics of a landscape (Catchpole, 2006). NCA coverage in Staffordshire and Derbyshire is shown in ***Figure 1***.

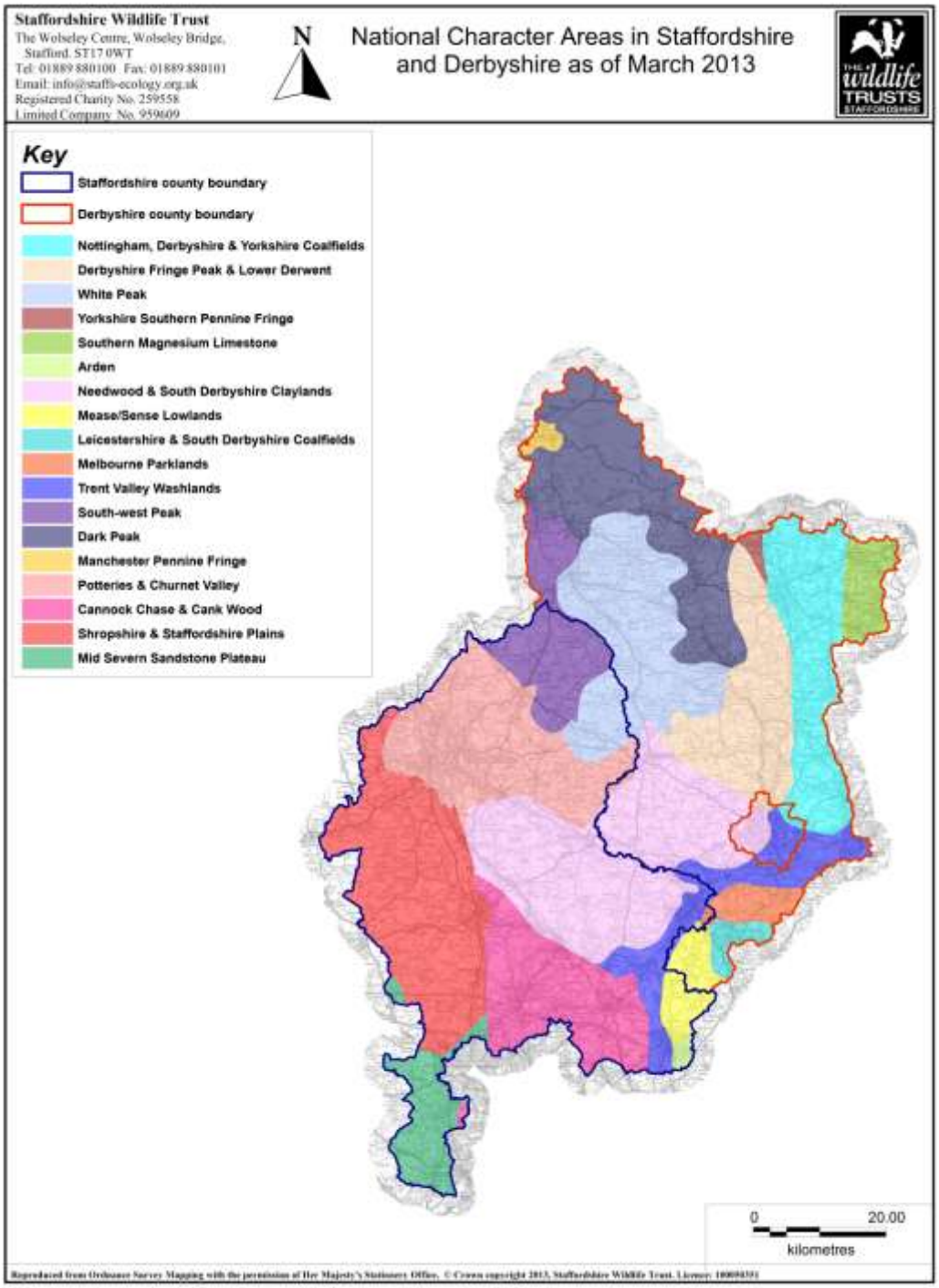


Figure 1. National Character Area coverage of Staffordshire and Derbyshire.

Six NCAs are currently present within East Staffordshire borough; the **White Peak** in the north of the borough, moving southwards is an area of **Potteries and Churnet Valley**. The majority of the borough is covered under the **Needwood and South Derbyshire Claylands** Character Area. Located in

the eastern part of the borough are **Trent Valley Washlands**, **Melbourne Parklands** and **Mease/Sence Lowlands** Character Areas.

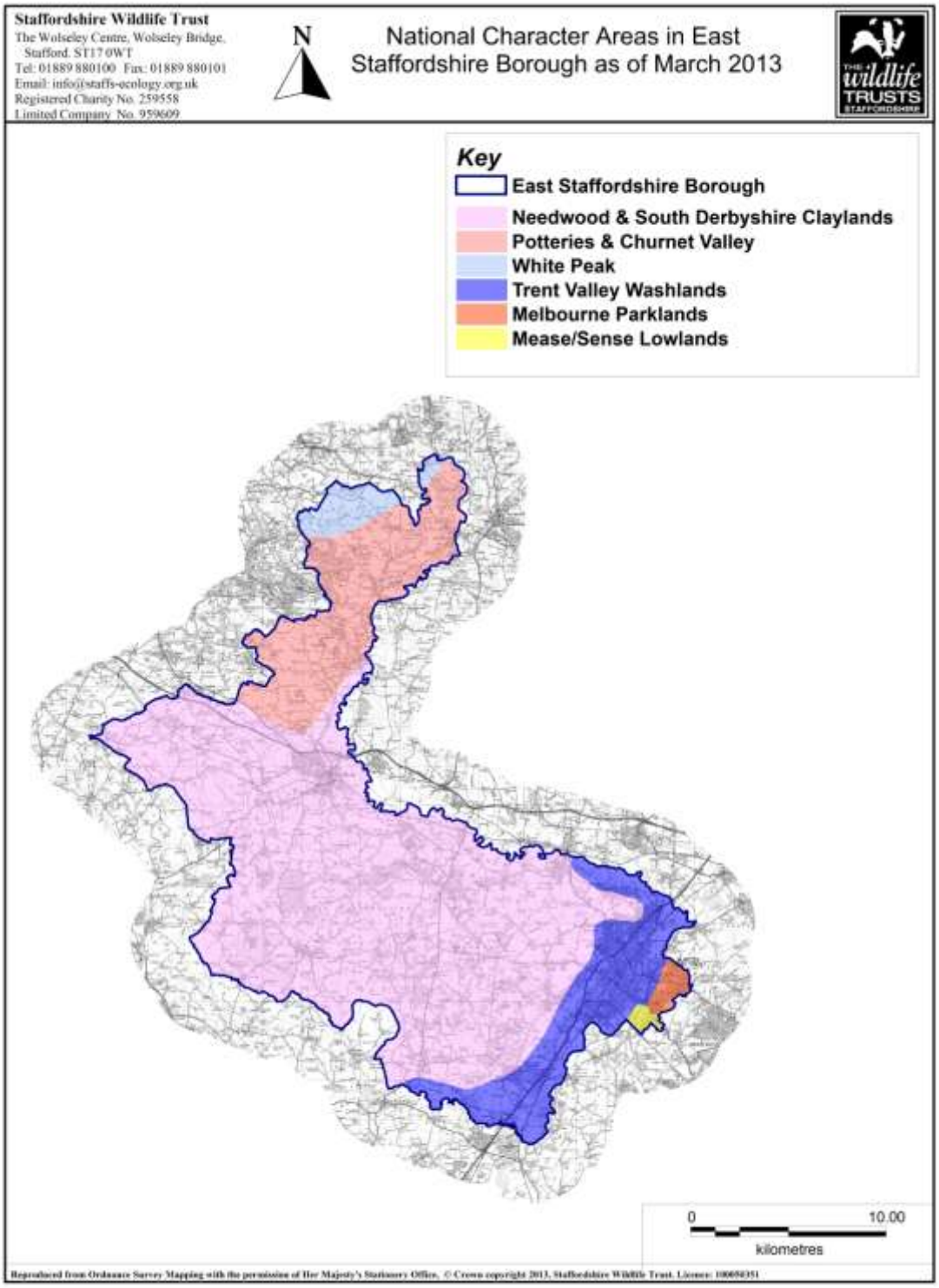


Figure 2. National Character Area (NCA) coverage in East Staffordshire Borough.

Eight EAP areas are present within East Staffordshire borough (see ***Figure 4***); **Limestone** and **Churnet Woodlands** in the north of the borough, moving southwards is an area of **Species-rich Farmlands**, leading into **Central Farmlands** to the east and southwest, **Central Heaths and Woods** to the west, an area of **Needwood Woods and Parklands** in the centre of the borough, **River Gravels** to the southeast and an **Urban** area located at Burton-upon-Trent in the east.

The Biodiversity Opportunity Map produced for East Staffordshire took into account the primary biodiversity opportunity areas in neighbouring Staffordshire local authorities (see ***Figure 3***) (To date, no similar mapping exercise has been carried out in Derbyshire). This was primarily through comparing it the Staffordshire Ecosystem Action Plan areas and neighbouring district/borough Biodiversity Opportunity maps (where available and up to date.)

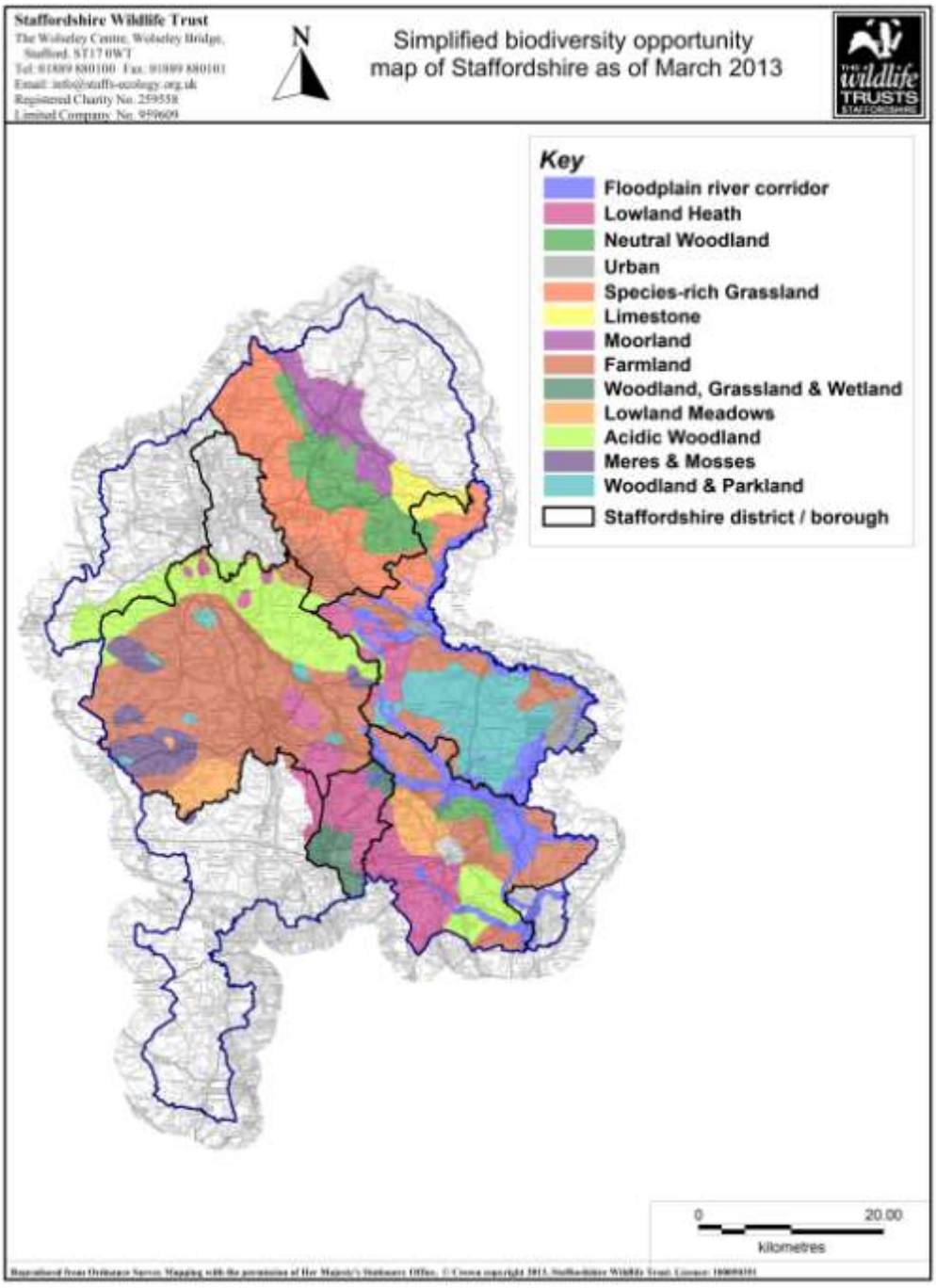


Figure 3. Biodiversity Opportunity Mapping coverage in Staffordshire (March 2013)

2.2 Staffordshire Biodiversity Action Plan

SBAP aims to prioritise conservation management at a landscape level and contribute to local, regional and national conservation targets by replacing Habitat and Species Action Plans with 14 EAPs and one Rivers Action Plan in the county (SBAP, 2012), see section 2.1 and ***Figure 4***.

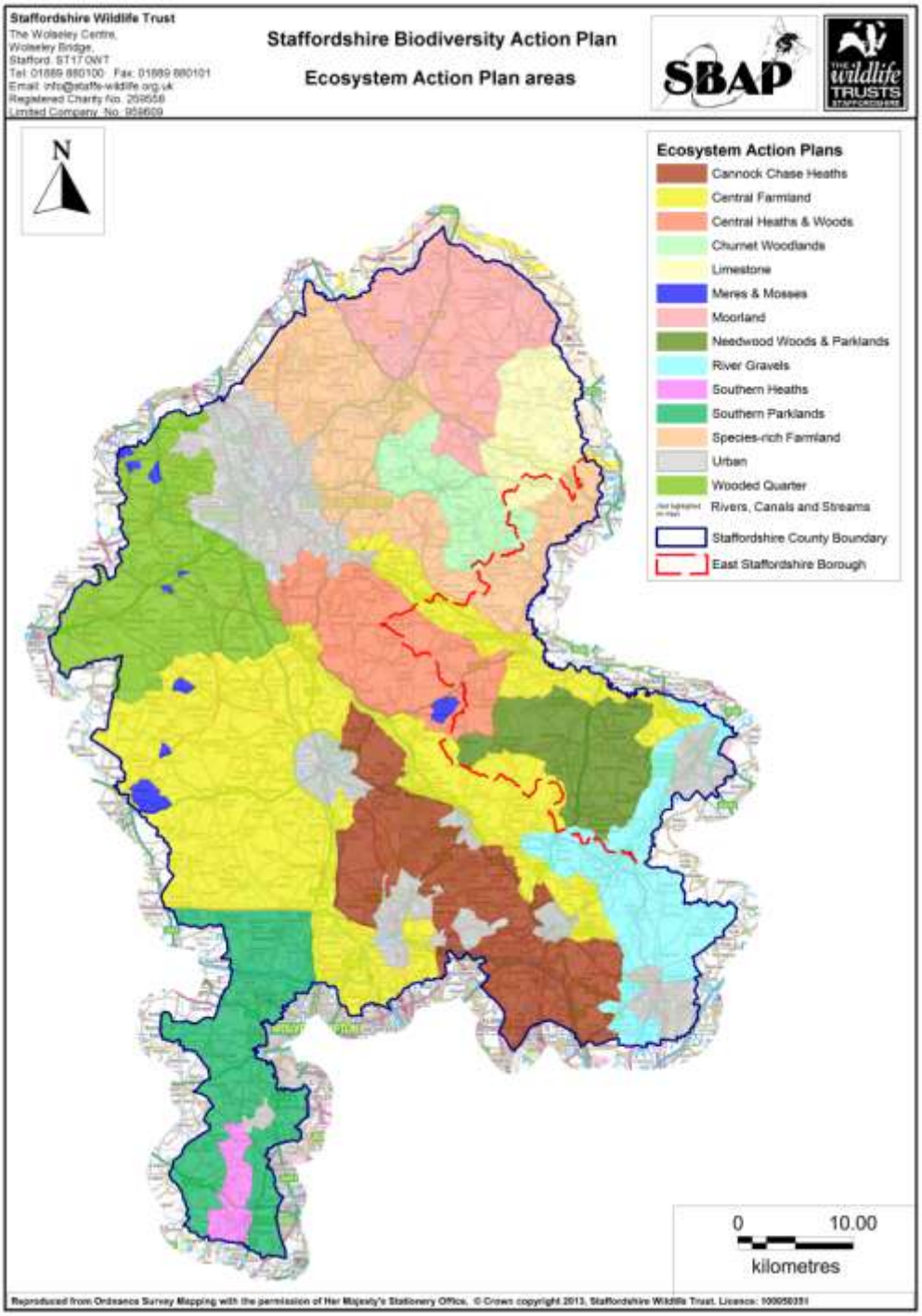


Figure 4. Staffordshire Ecosystem Action Plan areas

2.3 Information from the Local Record Centre

Staffordshire Ecological Record, the local ecological record centre for the county, was used as a critical source of information which is of particular value because of its local knowledge base. The record centre holds information on internationally, nationally and locally designated sites such as AWI, LWSs, LNRs, RIGS, International and UK Statutory sites, protected and UK BAP and SBAP priority species and habitats as well as more general information of importance for biodiversity conservation.

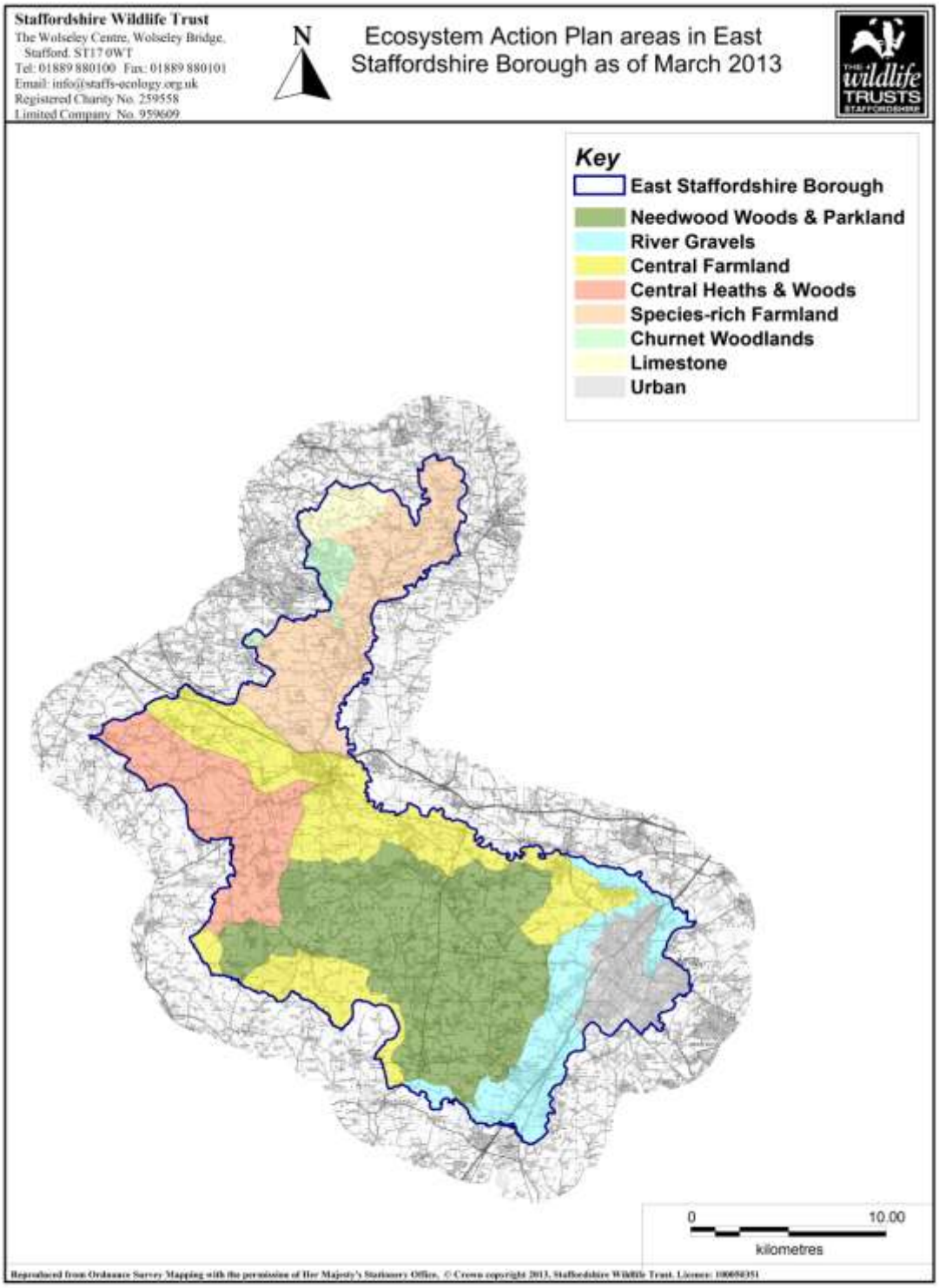


Figure 5. Ecosystem Action Plan (EAP) coverage in East Staffordshire Borough.

2.4 Local Ecologists and Naturalists

The knowledge of local ecologists and representatives from local organisations was sought, in partnership with the Borough Council, and was key to identifying and fine tuning the Biodiversity Opportunity zones.

Evaluation at larger scales provides a strategic context for local action while local validation and refinement helps to deal with any uncertainties (Catchpole, 2006).

2.5 Biodiversity Opportunity Mapping Outcome

Using the resources described, a single, strategic map, see ***Figure 6,*** was produced to show the primary habitat characteristics and opportunities for the area. The map illustrates the objectives for biodiversity conservation and it is, in addition, easier to understand, and more interesting, than lists of figures or text. This kind of strategic mapping goes further than simply defining what is already there, but also indicates what *could* be there, and what *should* be there if certain targets and objectives are to be met (Saunders and Parfitt, 2005).

It was decided that a framework, based on the EAPs, would be the best way to express this information. Therefore eight biodiversity opportunity zones were created within the borough of East Staffordshire; **Rivers, Canals & Streams, Central Heaths and Woods, Needwood Woods and Parkland, Species-rich Farmland, Farmland, Churnet Valley Woodlands, Limestone** and **Primary Urban**, see ***Figure 6.***

Photograph 1 View of the Weaver Hills (© SWT)

This methodology makes a direct and pragmatic contribution to setting ecologically robust frameworks for the delivery of Local Plans, Green Infrastructure Planning and climate change adaptation (Catchpole, 2006).

Also, the biodiversity opportunity map for the borough of East Staffordshire will form an essential component of a planning officer's checklist in establishing how a planning proposal can contribute appropriate maintenance, enhancement or restoration for local biodiversity. In addition, the map can inform the targeting of agri-environment schemes, the compilation of Neighbourhood Development Plans, and the development of landscape-scale initiatives.

2.6 Implementation of the Biodiversity Opportunity Zones

From the planning perspective, the resulting biodiversity opportunity zones for East Staffordshire are designed to inform and guide the prioritisation and location of habitat maintenance, restoration and creation across the Borough.

Any prospective planning application should be viewed in conjunction with the Borough's Green Infrastructure Strategy and the biodiversity opportunity zones, as well as the Staffordshire Biodiversity Action Plan. Further guidance on appropriate levels of mitigation can also be sought from Staffordshire Wildlife Trust.

In addition, the implementation of the biodiversity opportunity mapping zones will assist with the identification and designation of additional sites to the suite of Local Wildlife/Geological Sites in the borough.

3 East Staffordshire Biodiversity Opportunity Mapping Habitat Zones

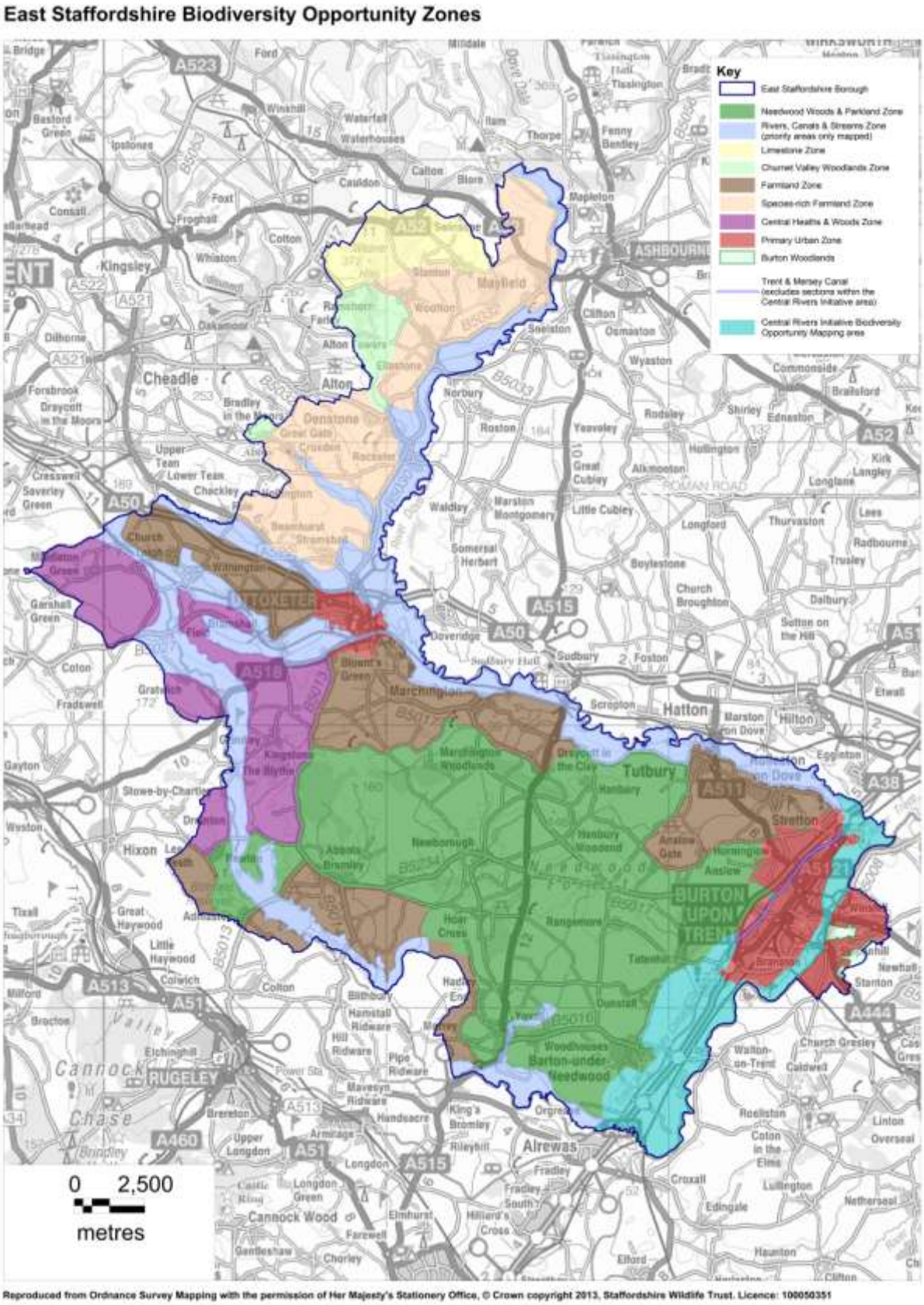
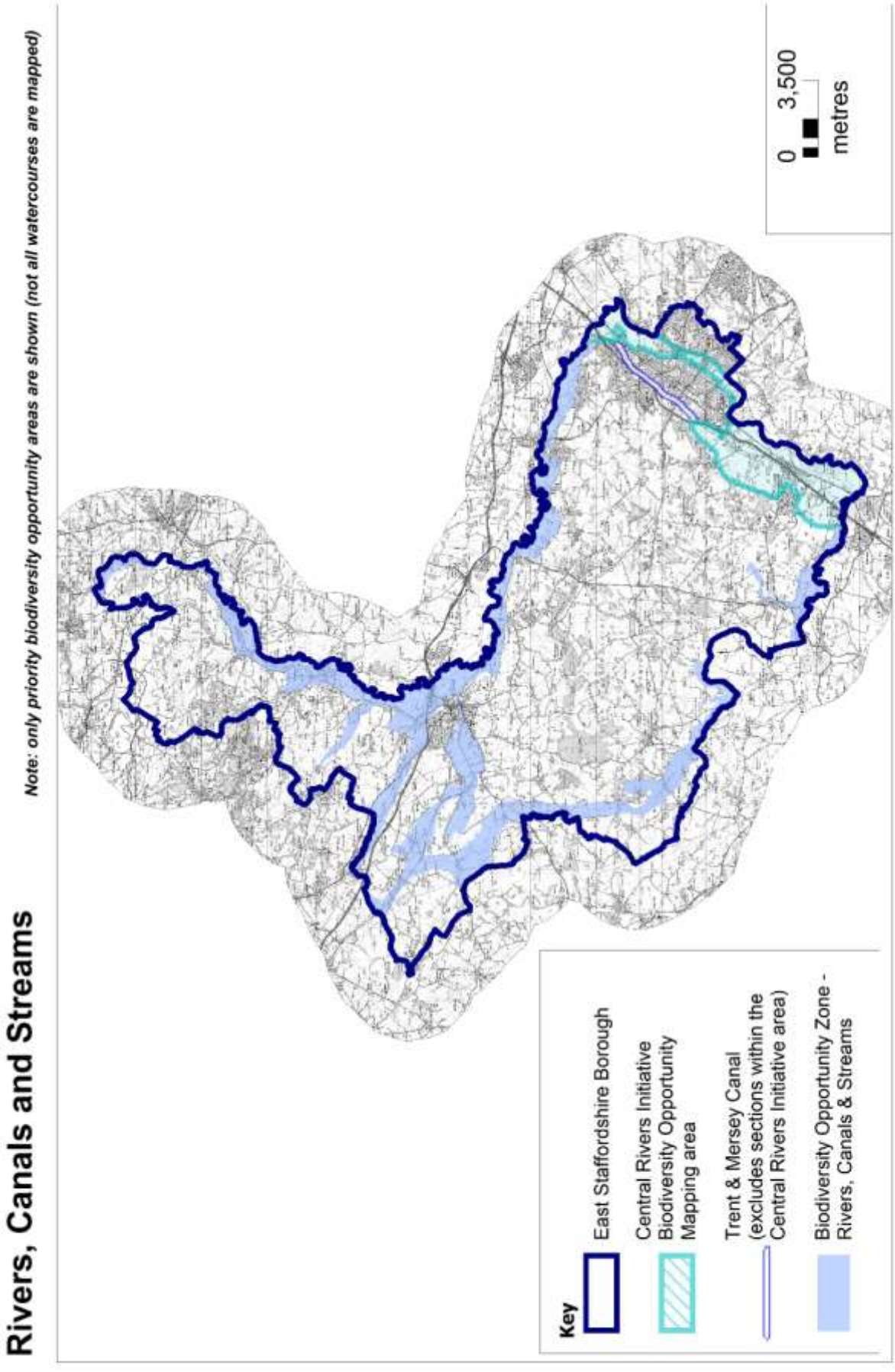


Figure 6: East Staffordshire Biodiversity Opportunity Zones

3.1 Rivers, Canals & Streams Zone



3.1.1 Brief Description of Zone

Staffordshire's major rivers arise on the Leek Moors, Ipstones Edges, Axe Edge, Biddulph Moor and the Black Country conurbation. Most flow to the Trent, and eventually to the Humber estuary. Most rivers and streams in the county have been modified by dredging and re-profiling to produce a uniform, trapezoidal cross-section. Some headwater streams retain a natural form and in several cases main rivers are showing recent evidence of natural recovery.

The Trent itself arises at Biddulph Moor and flows through Stoke, meeting the first major tributary, the Lyme Brook, at Hanford. Both rivers are heavily modified at this point and the Trent's appearance does not change much for most of its route through the county, other than becoming wider.

The Swarbourn meets the Trent at Wychnor meadows draining a significant area of the Needwood Forest. This watercourse has been heavily modified for much of its length and at Yoxall a number of weirs have been constructed for flood defence as gradient breaks and traditionally to help feed adjacent water meadows. The Swarbourn continues to be a key stronghold for white-clawed crayfish.

The Dove system (which includes the Manifold, Hamps, Churnet and Tean) joins the Trent at Newton Solney downstream of Burton-upon-Trent. This catchment includes a chunk of the Peak District National Park and has a number of good quality headwater and tributary streams.

Healthy rivers are ever-changing features that are constantly responding to a host of influences including rainfall, climate, season, geology, soils, vegetation and slopes. Levels of erosion, deposition and flooding will be dictated by a combination of these influences as the river works towards a natural balance known as dynamic equilibrium.

Tiny, trickling streams, gushing waterfalls and meandering floodplain rivers represent just some of the diversity of our natural watercourses. Canals, each

with their own personality and habitat types, also provide additional opportunities and links for the area's wildlife. With such a diversity of flow patterns, channels and meanders, coupled with a whole range of different bank habitats, rivers, streams and canals provide shelter and feeding opportunities for a variety of plants and animals.

Natural recovery of sections of the Dove, Blithe, Tean, Swarbourn and Trent is apparent in many locations following the cessation of routine dredging and removal of in-channel woody debris by the Environment Agency, a number of local authorities, estates and other private landowners. A good example of natural recovery can be seen near Eggington on the lower Dove, between Dovecliffe and the confluence with the Trent near Newton Solney. River gravels are now much more mobile resulting in the formation of shoals, bars, islands backwaters and riverine woodland, see ***Photographs 2 & 3***.

Photograph 2. A section of the River Dove near Egginton (Summer 2003).

Photograph 3. A section of the River Dove, near Egginton, demonstrating natural recovery (Summer 2010). *(Aerial photography © Blue Sky, 2013).*

3.1.2 Staffordshire Biodiversity Action Plan (SBAP) Priority Habitat Types

(Further information on SBAP priority habitat types and species can be found on the SBAP website (http://www.sbap.org.uk).

Coastal & Floodplain Grazing Marsh, Purple Moor Grass & Rush pasture, Lowland Meadow, Reedbeds, Eutrophic Standing Waters, Wet Woodland, and Ponds

Photograph 4. River Dove naturalisation at Egginton © SWT).

3.1.3 SBAP Priority Species

Atlantic Salmon, Brown Trout, Depressed River Mussel, Eel, Freshwater White-clawed Crayfish, Grass Snake, Lapwing, Northern Yellow Splinter Cranefly, Otter, Snipe, Spined Loach Fish and Water Vole.

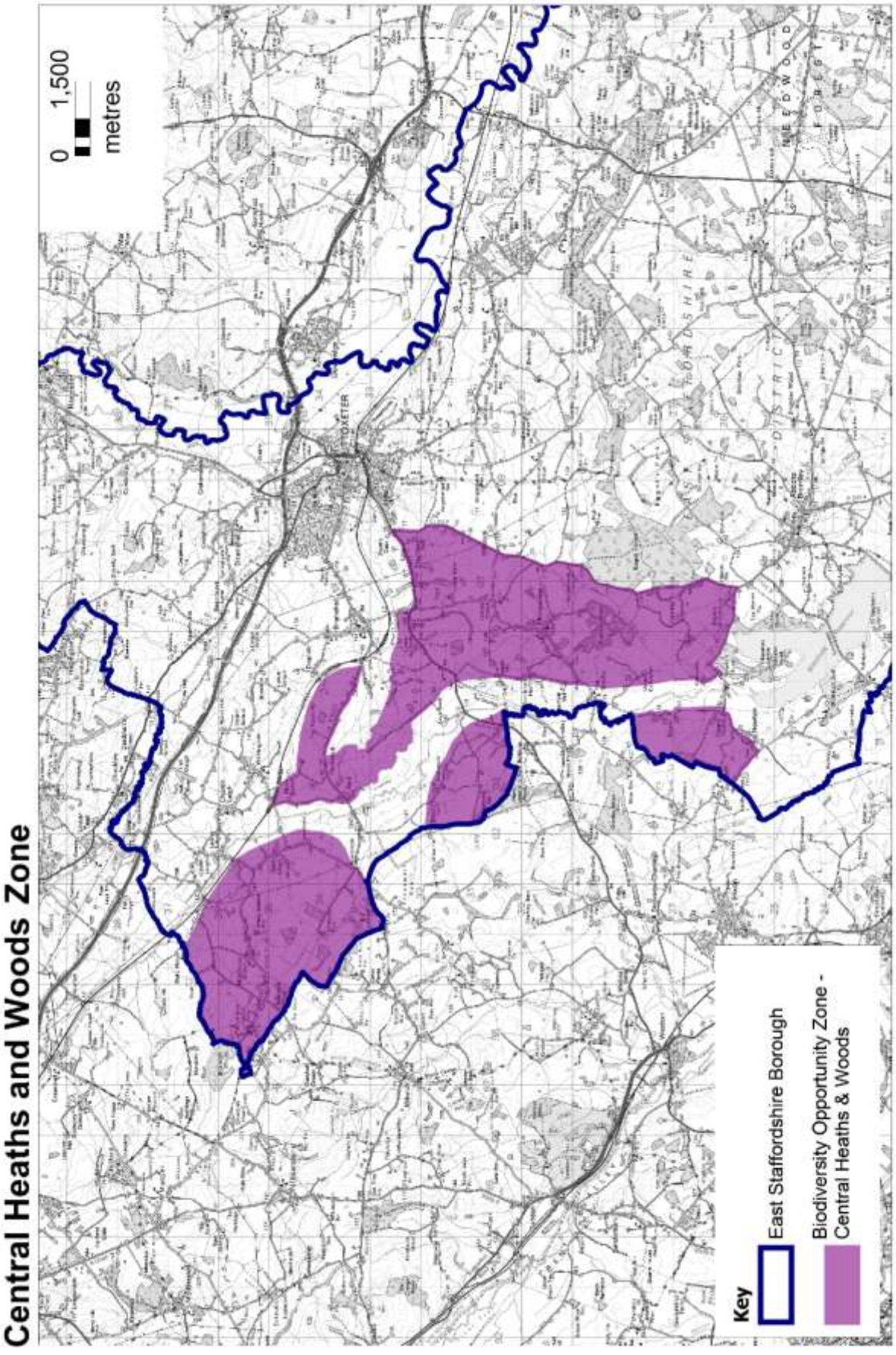
3.1.4 Objectives for the Zone

- Wetland mosaics will be the priority within this zone; maintain, restore and create wetland mosaics, with connectivity to watercourses where possible focusing on open water, Coastal & Floodplain Grazing Marsh, Purple Moor Grass & Rush Pasture and Lowland Meadow.
- There will be opportunities to create new Eutrophic Standing Waters (water bodies that are rich in minerals and organic content) through quarry restoration and it will be important that this happens within a landscape scale approach to best serve biodiversity, support existing ecosystems and ecosystem services.
- Other wetland features such as ponds and reedbeds need to be expanded, especially in networks of different successional ages.

- Maintain and enhance natural river and stream features such as meanders, back-waters, pools and riffles, braiding and presence of woody debris where it is not a flood risk.

Photograph 5. The Picknel Brook, west of Uttoxeter (© SWT).

3.2 Central Heaths and Woods Zone



3.2.1 Brief Description of Zone

The Central Heaths and Woods zone covers an area that consists of settled plateau farmland with small fragmented woodlands and is situated in the Needwood and South Derbyshire Claylands National Character Area (NCA 68). The zone encompasses much of the Borough from Bagot's Bromley, north to Lower Loxley and then west to the local authority boundary.

It is characterised by many large-scale regular and irregular fields across a raised undulating plateau. There are some conifer and broadleaved plantations, few hedgerows and a generally low density of hedgerow trees. Some remnant heathy woodland of ancient origin still exists, containing oak, holly and silver birch, or woodland estate planting. This area is influenced by the River Trent running along its north-western edge and the River Blithe to the south.

The level of habitat fragmentation within this area is a direct result of human activities such as intensive farming and urban encroachment. It has meant that plant and animal communities have become increasingly isolated from one another leaving them more vulnerable to habitat loss and the effects of climate change.

3.2.2 SBAP Priority Habitat Types

(Further information on SBAP priority habitat types and species can be found on the SBAP website (http://www.sbap.org.uk).

Arable Field Margins, Hedgerows, Lowland Mixed Deciduous Woodland, Lowland Dry Acid Grassland, Lowland Meadows, Purple Moor-grass & Rush Pasture, Ponds, Lowland Heathland and Coastal & Floodplain Grazing Marsh.

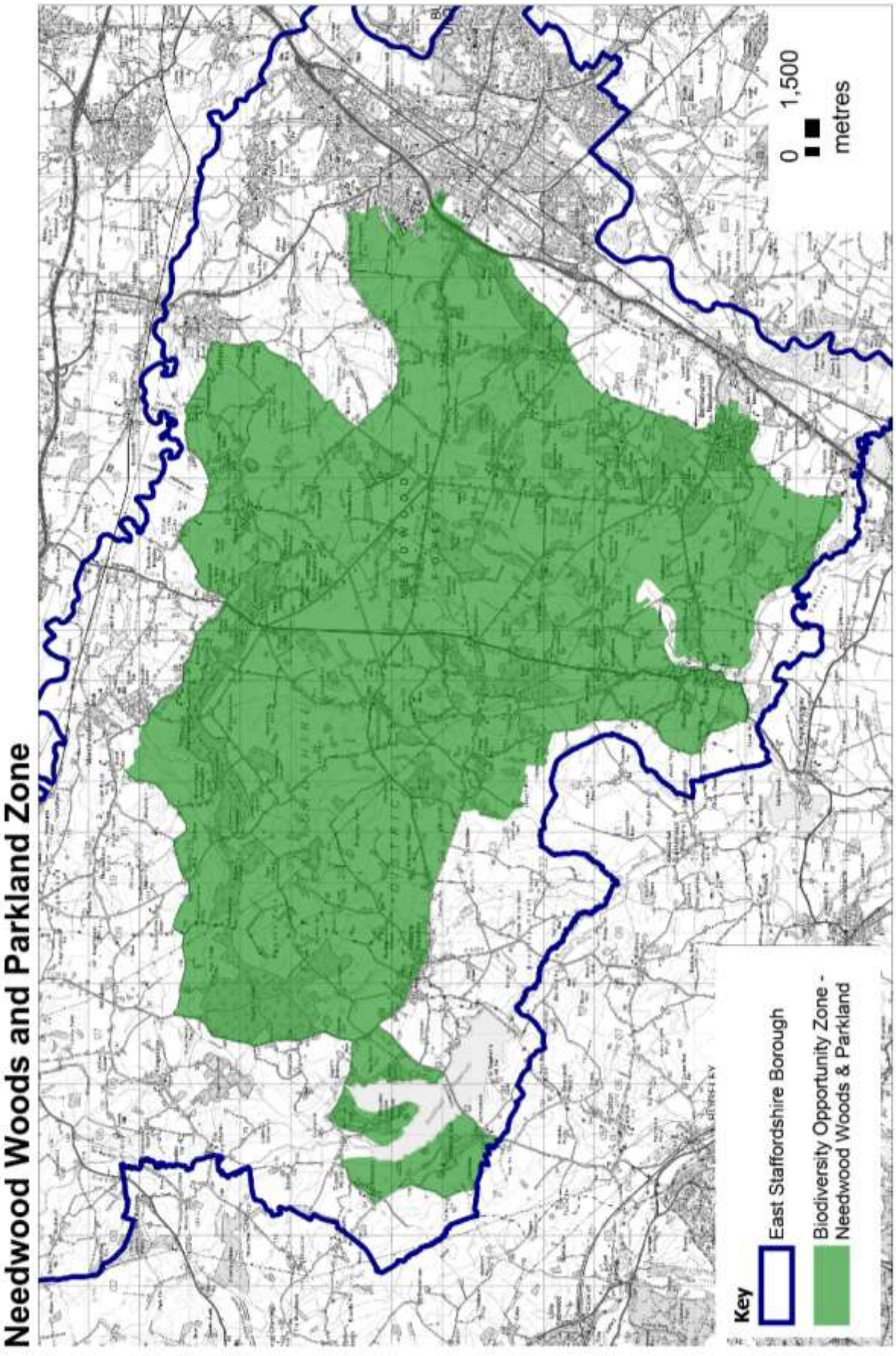
3.2.3 SBAP Priority Species

Barn Owl, Common Lizard, Solitary Bees & Wasps, Song Thrush, Spotted Flycatcher and White-letter Hairstreak.

3.2.4 Objectives for the Zone

- The primary objective for the Central Heaths and Woods zone is to maintain, restore and create areas of Lowland Mixed Deciduous Woodland, Lowland Heathland and Coastal & Floodplain Grazing Marsh.
- Opportunities to create Lowland Dry Acid Grassland, Lowland Meadows, Purple Moor-grass & Rush Pasture, Ponds and connecting habitats, through the use of Hedgerows and Arable Field Margins, will also need to be taken to improve this area.

3.3 Needwood Woods and Parkland Zone



3.3.1 Brief Description of Zone

The Needwood Woods and Parkland zone lies almost entirely within the Needwood and South Derbyshire Claylands National Character Area (NCA 68). It supports a variety of woodland types depending upon their supporting substrates. The dominant ecological character types are free-draining farmlands and boulder clay plateaux but these are often fringed by washlands, river terraces and marshy clay lands. The plateaux areas retain significant remnants of the woodland which once dominated this area, including some woodland which is designated as SSSI. Wood-pasture is characteristic of both landscape types.

Woodland is not dominant in all areas of the Needwood zone. The grassland in uncultivated parts is typically neutral and the wetter lowlands are associated with rivers and seasonal inundation. The area has a mosaic of clay substrates where impeded drainage has provided wet grassland patches, marshy field corners with remnant emergent vegetation and a significant number of ponds being dug.

Other areas, which include most of the zone beyond the Marchington Woodlands have poor representation of semi-natural vegetation characteristic of this landscape type (e.g. ancient woodland, wood pasture, hedgerows, hedgerow trees and unimproved grassland) due to a reduction in quality and quantity over time.

Photograph 6 Spring ground flora in a woodland near Marchington (© SWT)

Major issues include intensive arable and improved pasture farming which has reduced the level of diversity across the area. Hedgerow quantity and quality has reduced due to the increase of field size or replacement with fencing. The increase in roadside development and extension of villages also threatens further losses of semi-natural vegetation.

3.3.2 SBAP Priority Habitat Types

(Further information on SBAP priority habitat types and species can be found on the SBAP website (http://www.sbap.org.uk).

Arable Field Margins, Ponds, Lowland Mixed Deciduous Woodland, Wood Pasture and Parkland, Hedgerows, Lowland Meadows, Coastal & Floodplain Grazing Marsh, Rivers and Streams and Eutrophic Standing Waters.

Photograph 7. Veteran tree on a Wood Pasture and Parkland site in East Staffordshire (© SWT).

3.3.3 SBAP Priority Species

Barn Owl, Bats, Brown Hare, Grey Partridge, Lapwing, Skylark and Spotted Flycatcher.

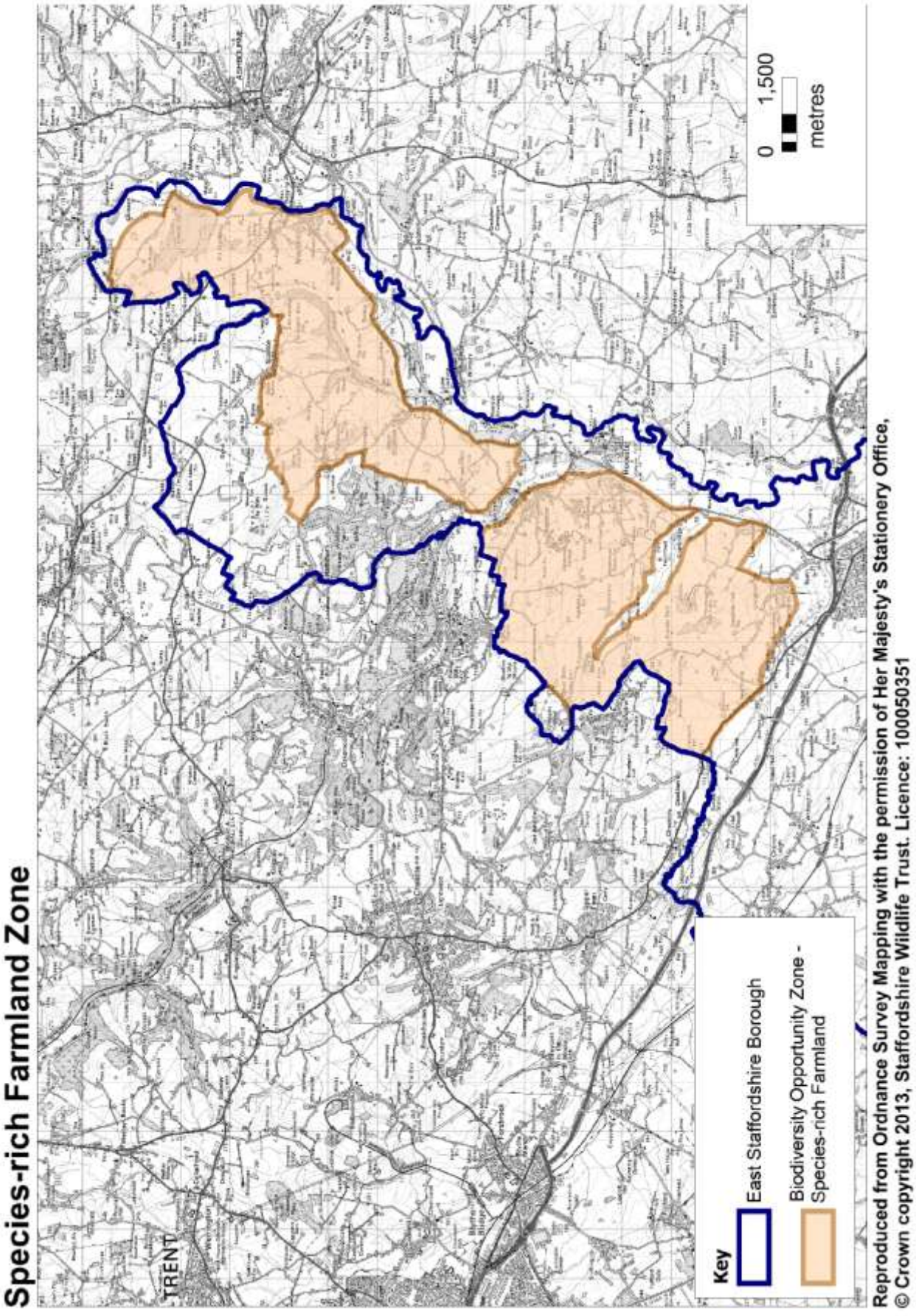
3.3.4 Objectives for the Zone

- The primary habitat objective within the area is the maintenance, restoration and expansion of Wood-Pasture and Parkland.
- Woodland and Parkland habitat restoration should include the reversion of coniferous plantations to broadleaves, instatement / improvement of woodland management aimed at enhancing woodland diversity and structure, notably the retention of deadwood and woody debris in watercourses.

- Parkland sites will benefit from the introduction of management including appropriate tree planting to ensure the continuity of canopy cover, diversity of age range.
- Survey and manage for invertebrates on appropriate sites and veteran trees.
- Where appropriate throughout the zone, the establishment of species-rich grassland according to soil types, acidic in sandstone areas and lowland meadows on clay, should be encouraged.
- Hedgerows are a key habitat type for connectivity adjacent to existing woodland sites and around small, rural villages and towns such as Yoxall. The retention and enhancement of ancient and important hedgerows is a key opportunity, in addition to expanding the current survey knowledge of the habitat type.

Photograph 8 Wild Service Tree (Sorbus torminalis) in a hedgerow near Yoxall (© SWT).

3.4 Species-rich Farmland Zone



3.4.1 Brief Description of Zone

The Species-rich Farmland zone covers the majority of the northern belt of the Borough. It is contained almost entirely within the Potteries and Churnet Valley National Character Area (NCA 64).

In terms of ecological characterisation (Staffordshire County Council, 2010), the zone has something of a north south divide, with the north dominated with a suite of unimproved habitat types. The south has a prevalence of free-draining farmlands, with a proportion of dry heathland and some areas of wetland interest. Washland areas are important on the southern fringe of the zone along the River Dove and also in the northeast associated with the Churnet.

Farming varies from large intensive pastoral sheep and cattle farms, to collections of smallholdings. Sand and gravel quarries are very much an obvious feature of the area and localised early industrial influences are important. The low intensity farming gives rise to the flower-rich grasslands and heaths that are particularly characteristic and form a significant proportion of the area, often in mosaics with other habitats. This area is particularly biodiverse, meaning that forming links between, and increasing the size of habitat patches, should be relatively straightforward to achieve.

Photograph 9. The view looking north from Mayfield (© SWT)

3.4.2 SBAP Priority Habitat Types

(Further information on SBAP priority habitat types and species can be found on the SBAP website (http://www.sbap.org.uk).

Arable Field Margins, Coastal & Floodplain Grazing Marsh, Eutrophic Standing Waters, Hedgerows, Lowland Calcareous Grassland, Lowland Dry Acid Grassland, Lowland Heathland, Lowland Meadow, Mesotrophic Lakes, Lowland Mixed Deciduous Woodland, Ponds, Purple Moor-grass & Rush Pasture, Reedbeds, Upland Heathland and Wood-pastures and Parkland.

3.4.3 SBAP Priority Species

Barn Owl, Brown Hare, Bats, Farmland Seed-eating Birds, Grey Partridge, Heath Rustic (Moth), Lapwing, Polecat, Skylark, Snipe and Wall (Butterfly).

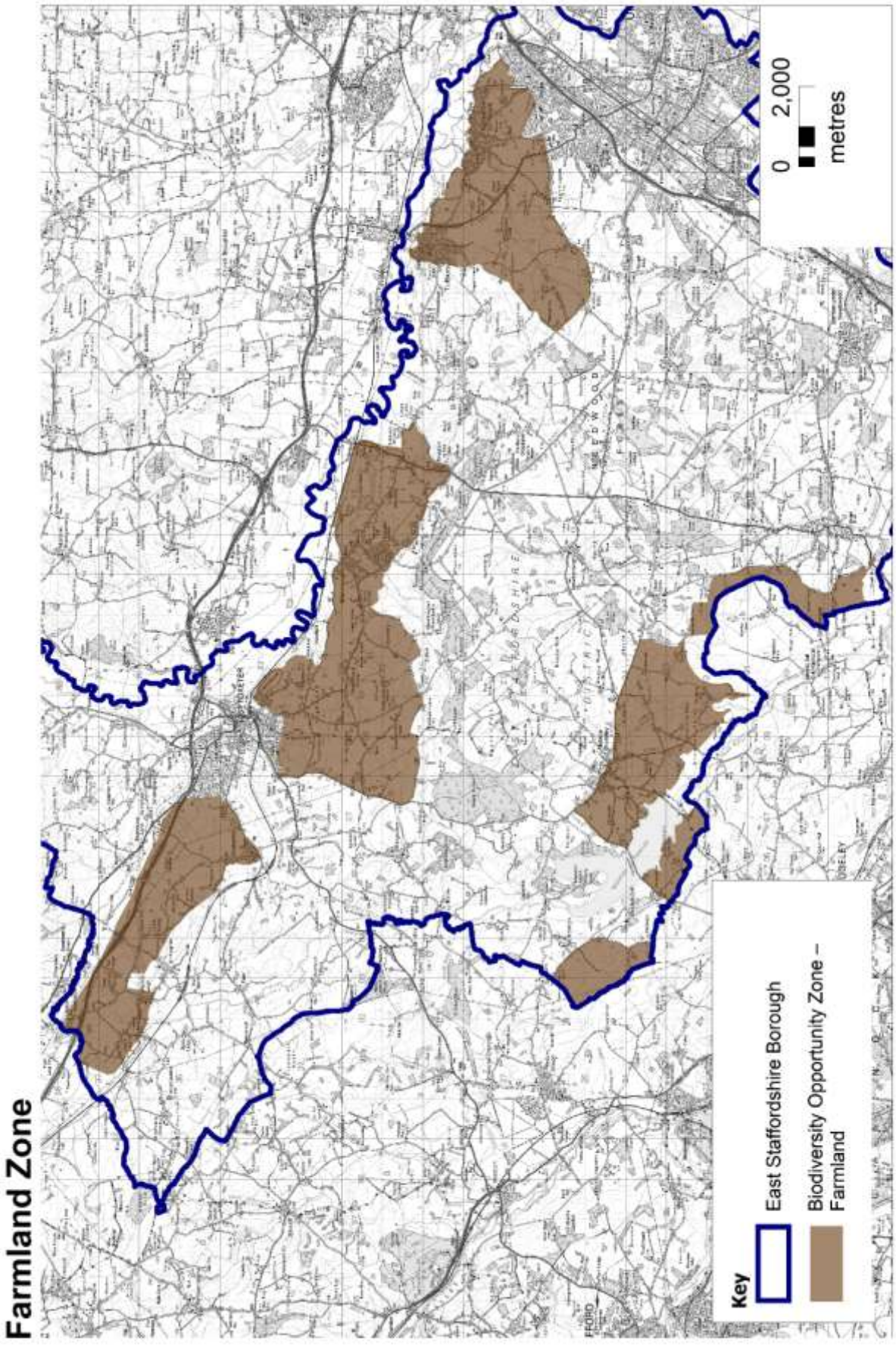
3.4.4 Objectives for the Zone

- The primary habitat objectives within the area are the maintenance, restoration and expansion of species-rich grasslands, particularly Lowland Meadows and also, where appropriate, Upland and Lowland Heathland.

Other objectives for the zone comprise:

- The enhancement, retention and creation of networks of field margins – hedgerows, tree belts and arable margins.
- Retain and enhance small stepping-stone woodlands and ponds while aiming to buffer small streams and reconnect to floodplains in an attempt to improve water quality and flood alleviation.
- Orchards are uncommon features in East Staffordshire and the two Farmland zones provide the most appropriate rural opportunities for the creation of new sites. Ideally, maximising the use of genetic material from old / rare fruit tree varieties.

3.5 Farmland Zone



3.5.1 Brief Description of Zone

The Central Farmland zone lies within the Needwood and South Derbyshire Claylands National Character Area (NCA 68). There is a predominance of clay soils with large sections of the zone area heavily influenced by rivers, tributaries and washlands. Much of the land is now intensive agriculture and there are many expanding conurbations with infrastructure development demands.

According to the Supplementary Planning Guidance (Staffordshire County Council, 2000) much of the zone is characterised as Settled Plateau Farmland Slopes, with some ancient heathy oak woodland, new plantations, large farms and fields which are intensive mixed pastoral and arable farming and the deterioration of quality and quantity of hedgerow boundaries as fence lines increase. (revised Supplementary Planning Guidance is currently in preparation and due to be published in late 2013).

3.5.2 SBAP Priority Habitat Types

(Further information on SBAP priority habitat types and species can be found on the SBAP website (http://www.sbap.org.uk).

Eutrophic Standing Waters, Coastal & Floodplain Grazing Marsh, Lowland Fens, Hedgerows, Lowland Dry Acid Grassland, Lowland Heathland, Lowland Mixed Deciduous Woodland, Lowland Meadow, Open Mosaic Habitats on Previously Developed Land, Ponds, Purple Moor-grass & Rush Pasture, Reedbeds, Wood-pastures & Parkland.

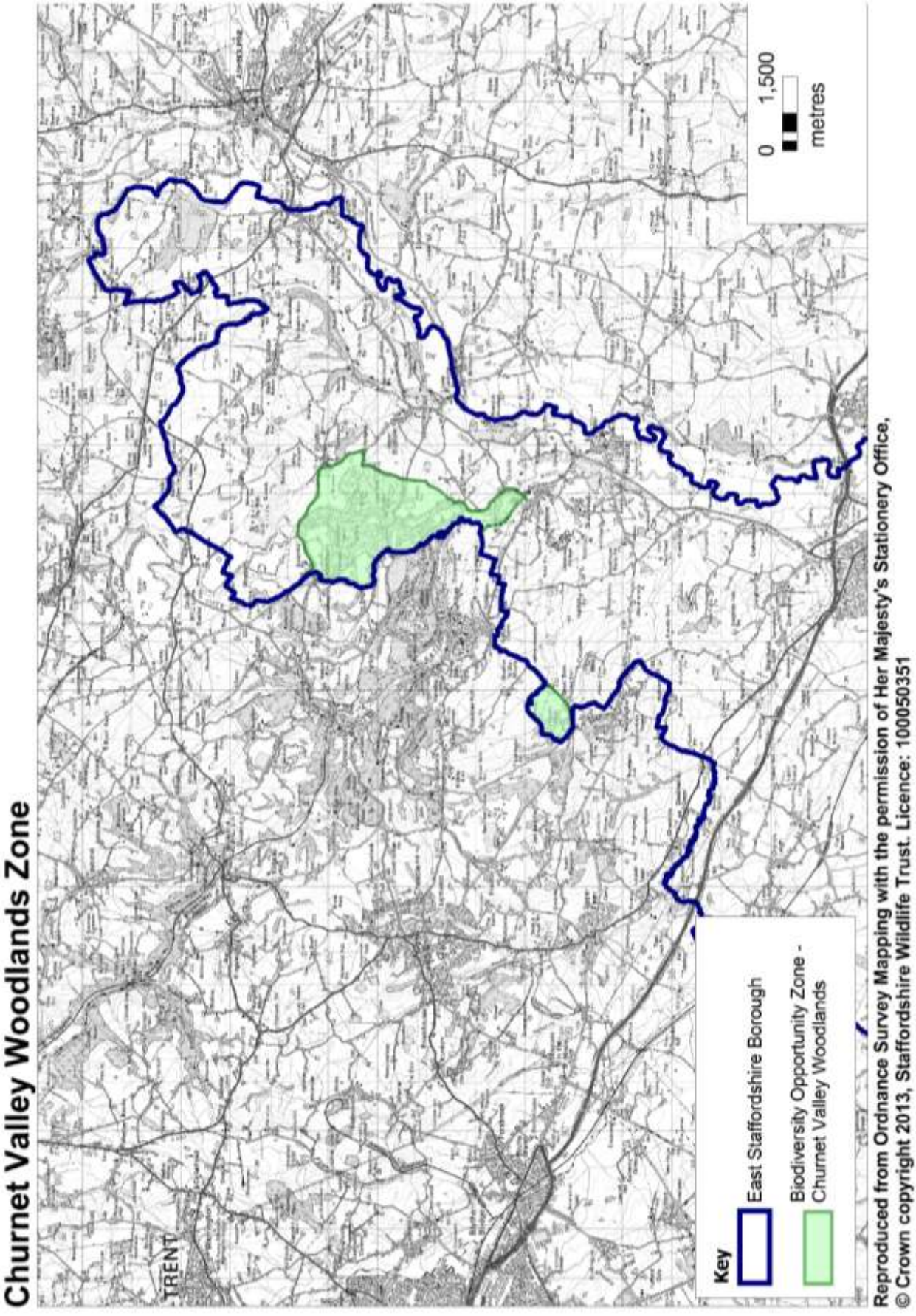
3.5.3 SBAP Priority Species

Barn Owl, Brown Hare, Bats, Farmland Seed-eating Birds, Grey Partridge, Harvest Mouse, Lapwing, Otter, Polecat, Yellow Wagtail.

3.5.4 Objectives for the Zone

- Reduce fragmentation of existing semi-natural habitats by linking sites through the creation of habitat corridors and networks using priority habitats where possible.
    - Hedgerows, Arable Field Margins and Rivers are priorities in achieving this objective,
    - Create wetland, grassland and woodland mosaics to diversify the area.
    - Grasslands are particularly important, with an emphasis on Lowland Meadow and Coastal & Floodplain Grazing Marsh.
- Orchards are uncommon features in East Staffordshire and the two Farmland zones provide the most appropriate rural opportunities for the creation of new sites. Ideally, maximising the use of genetic material from old / rare fruit tree species.

3.6 Churnet Valley Woodlands Zone



3.6.1 Brief Description of Zone

While the majority of the Churnet Valley Woodlands lie within the Staffordshire Moorlands District Council (SMDC) local authority area, a small proportion is located in East Staffordshire. Extending from the village of Wootton, on the east, to the SMDC boundary on the west and south as far as Quixhill and north to Ramshorn,

The Churnet Woodlands zone lies entirely within the Potteries and Churnet Valley National Character Area (NCA 64). The area is transitional between upland and lowland and contains a wide range of habitats, including heathland and grassland. The area has been preserved from more significant agricultural intensification by its rolling landscape of upland pasture hills cut by steep-sided, wooded valleys locally known as cloughs.

The incised wooded valleys (including the area outside of East Staffordshire) retain the largest remaining concentration of semi-natural ancient woodland in Staffordshire, with the main woodland types varying from alder woods in the valley bottoms and flushes, through ash woods on base rich soils, to a mixture of sessile oak, pedunculate oak and silver birch woodland on the drier soils. Unimproved grasslands, with high botanical diversity are also important in the area, ranging from hay meadows, to acidic grassland which in some places grades into heathland. Wet grassland is also reasonably extensive, with examples of wet meadows, fen and mire habitats. The area is important for birds but also has a rich invertebrate fauna, such as beetles, butterflies and flies, some of which are associated with clean water and the continuous presence of dead wood.

3.6.2 SBAP Priority Habitat Types

(Further information on SBAP priority habitat types and species can be found on the SBAP website (http://www.sbap.org.uk).

Arable Field Margins, Coastal & Floodplain Grazing Marsh, Eutrophic Standing Waters, Hedgerows, Lowland Dry Acid Grassland, Lowland Heathland, Lowland Meadow, Mesotrophic Lakes, Lowland Mixed Deciduous Woodland, Ponds, Purple Moor-grass & Rush Pasture, Reedbeds, Wood-pastures and Parkland and Rivers and Streams.

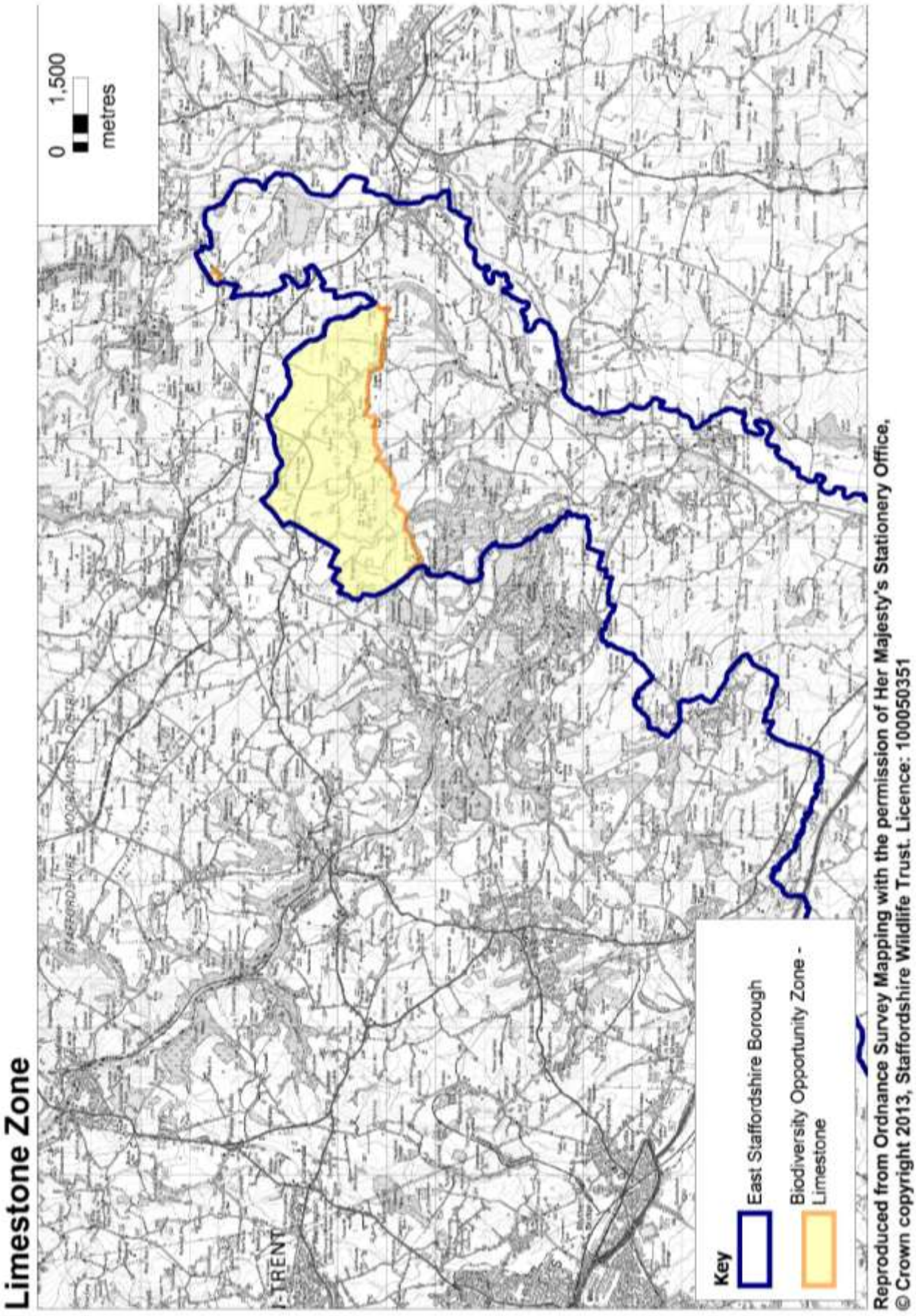
3.6.3 SBAP Priority Species

Barn Owl, Bats, Dead-wood Beetles, Dormouse, Lesser-spotted Woodpecker, Otter and Wood Warbler.

3.6.4 Objectives for the Zone

- The primary habitat objective within the area is the maintenance, restoration and expansion of Lowland Mixed Deciduous Woodland, with particular focus on conifer reversion and invasive, non-native plant species removal.
- There are, however, also other important habitats within the area, so the placement of new woodland needs to consider existing and surrounding habitats, and the maintenance and enhancement of complementary habitats as part of an overall mosaic with specific reference to grasslands, fens, rare mineral-rich (tufa) seepages.
- The naturalisation of watercourses is an additional objective as the zone is unique in the Borough for the number of waterfalls and cascades throughout the watercourses.

3.7 Limestone Zone



3.7.1 Brief Description of Zone

Extending from the local authority boundary with Staffordshire Moorlands southeast to Stanton, the Limestone zone broadly covers the Staffordshire area of the White Peak National Character Area (NCA 52). The area supports some of the best remaining examples of calcareous grassland in the county.

The geology of the area is Carboniferous limestone and is largely identified as limestone grasslands under the Staffordshire County Council Ecological Character Area, with the west of the area described as wet heath, moor or boglands. Primarily it is described as the Weaver Hills Grasslands. Within the existing Supplementary Planning Guidance the area is within the limestone highland fringe (Staffordshire County Council, 2000). The zone has a distinctive character which is due to its limestone geology and topography, which has a main plateau area incised by steep-sided dales. Agriculture is mainly pastoral, with limestone walls as the dominant field boundary type.

The Limestone zone supports a range of important sites including Rue Hill and Stanton Pastures and Cuckoo Cliff Valley Sites of Special Scientific Interest (SSSIs). The area is heavily influenced by the river valleys and large scale limestone quarries, with some disused workings.

3.7.2 SBAP Priority Habitat Types

(Further information on SBAP priority habitat types and species can be found on the SBAP website (http://www.sbap.org.uk).

Arable Field Margins, Coastal & Floodplain Grazing Marsh, Hedgerows, Lowland Calcareous Grassland, Lowland Dry Acid Grassland, Lowland Heathland, Lowland Meadow, Lowland Mixed Deciduous Woodland, Ponds, Purple Moor-grass & Rush Pasture, Upland Calcareous Grassland and Upland Heathland.

Photograph 10 Calcareous grassland near the village of Stanton. (© SWT)

3.7.3 SBAP Priority Species

Brown Hare, Dingy Skipper (Butterfly), Frog Orchid, Northern Brown Argus, Skylark and Snipe.

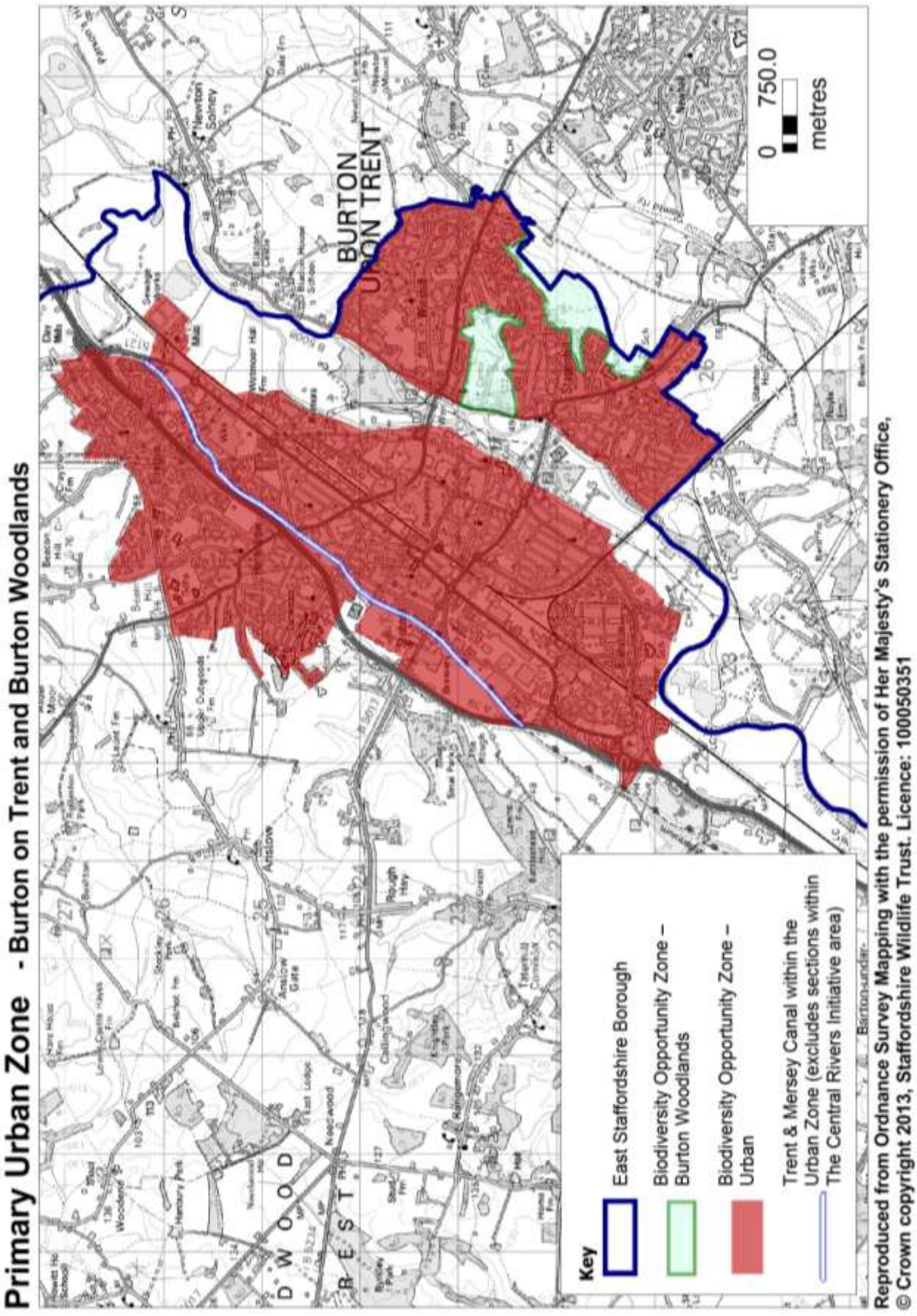
3.7.4 Objectives for the Zone

- The primary habitat objective within the area is the maintenance, restoration and expansion of species-rich grasslands, particularly calcareous grassland.

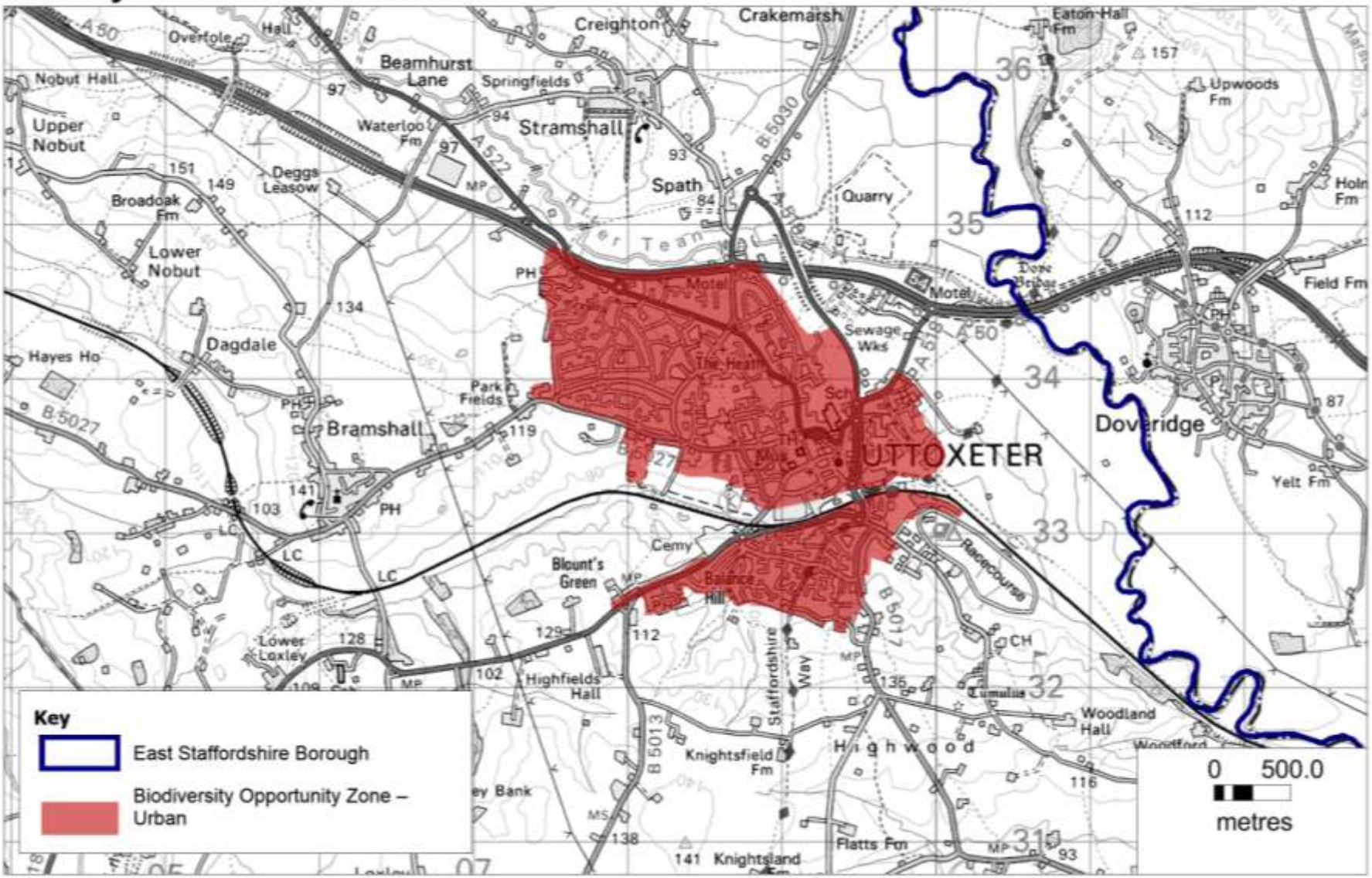
Other objectives in the area are:

- To increase connectivity of semi-natural habitats to create larger habitat complexes using priority habitats where possible.
- Securing appropriate management of ravine woodlands and riparian strips and conifer reversion would be desirable.

3.8 Primary Urban Zone



Primary Urban Zone - Uttoxeter



3.8.1 Brief Description of Zone

Urban centres are often considered as being less important for biodiversity than rural environments. However, urban environments provide a diverse, and often highly specialised, range of animals and plants in a number of important habitats such as ‘green spaces’, ‘brownfield sites’ and private gardens.

A continually expanding human population has meant that the sustainable development of urban centres is crucial in maintaining, and improving, the level of biodiversity in each urban area. Not only will this be important for biodiversity itself, but it also provides a direct link for the public to enjoy nature and improve the overall quality of life. Urban areas of high biodiversity will benefit from environmental and economic benefits such as cleaner air and more recreational activities.

In East Staffordshire the Urban zone is focused mainly on the towns of Uttoxeter and Burton on Trent, but there are also likely to be similar opportunities in the larger villages of Rolleston on Dove, Barton Under Needwood, Tutbury and Rocester.

3.8.2 SBAP Priority Habitat Types

(Further information on SBAP priority habitat types and species can be found on the SBAP website (http://www.sbap.org.uk).

Rivers, Coastal & Floodplain Grazing Marsh, Open Mosaic on Previously Developed Land, Lowland Mixed Deciduous Woodland and Lowland Meadow.

3.8.3 SBAP Priority Species

Bats, Bumblebees, Great Crested Newt, Hedgehog, House Sparrow, Slow-worm, Song Thrush and Water Vole.

3.8.4 Objectives for the Zone

- The primary objective for this zone is to provide semi-natural habitats within and around urban centres including Open Mosaic on Previously Developed Land, Lowland Mixed Deciduous Woodland and Lowland Meadow.
- To ensure that development is sustainable by providing permeable corridors through which species can move. In Burton this is particularly important around sites such as The Trent and Mersey Canal, a section of which is designated as a Local Wildlife Site and a Local Nature Reserve and the small woods on the eastern side of the town.
- Widen and create complementary habitats where possible for priority species. Burton supports a diverse range of non-native plant species of interest which are associated with the town's rich industrial heritage. One such plant Indian Knotgrass (*Polygonum cognatum*) (Stace, 2010) is known from only one site in the British Isles.
- Maintain an open corridor through development zones and link to other open green space.
- Secure and maintain positive management of urban habitats. Both Uttoxeter and Burton host areas that are defined as Open Mosaic on Previously Developed Land and, ideally, a selection of sites displaying a range of habitat types, from open, sparsely vegetated areas through to scrubby stands, needs to be retained at any one time.

4 Landscape-scale Projects in East Staffordshire

The Borough of East Staffordshire currently has three landscape-scale projects which have improved and enhanced biodiversity as a core objective. The projects are: Central Rivers Initiative (CRI), Churnet Valley Living Landscape Partnership (CVLLP) and The National Forest (TNF), see ***Figure 7***.

All three projects reflect the aims of the Staffordshire Biodiversity Action Plan (SBAP) and their resulting objectives compliment and expand those of the SBAP. Both CRI and TNF have conducted finer-scale opportunity mapping exercises, almost to field-by-field scale. For further information, see the appropriate project's website, details of which are listed below.

At the time of writing, CVLLP is seeking status as a Nature Improvement Area (NIA). NIAs were set up in 2012 as part of the measures introduced in the Government's Natural Environment White Paper. There are currently 12 NIAs which are large, discrete areas run by local partnerships of land management and conservation organisations and local authorities, overseen by Natural England. NIAs will benefit wildlife, people and economic growth by creating more and better-connected habitats and by enhancing landscapes. They will increase resilience to climate change and support the landscape's ability to provide natural benefits like flood protection and clean water (DEFRA, 2012).

Further information on the three initiatives can be found at:

The National Forest: **http://www.nationalforest.org**
Central Rivers Initiative: **http://www.centralrivers.org.uk**
Churnet Valley Living Landscape Partnership: **http://www.churnet-valley.org.uk**

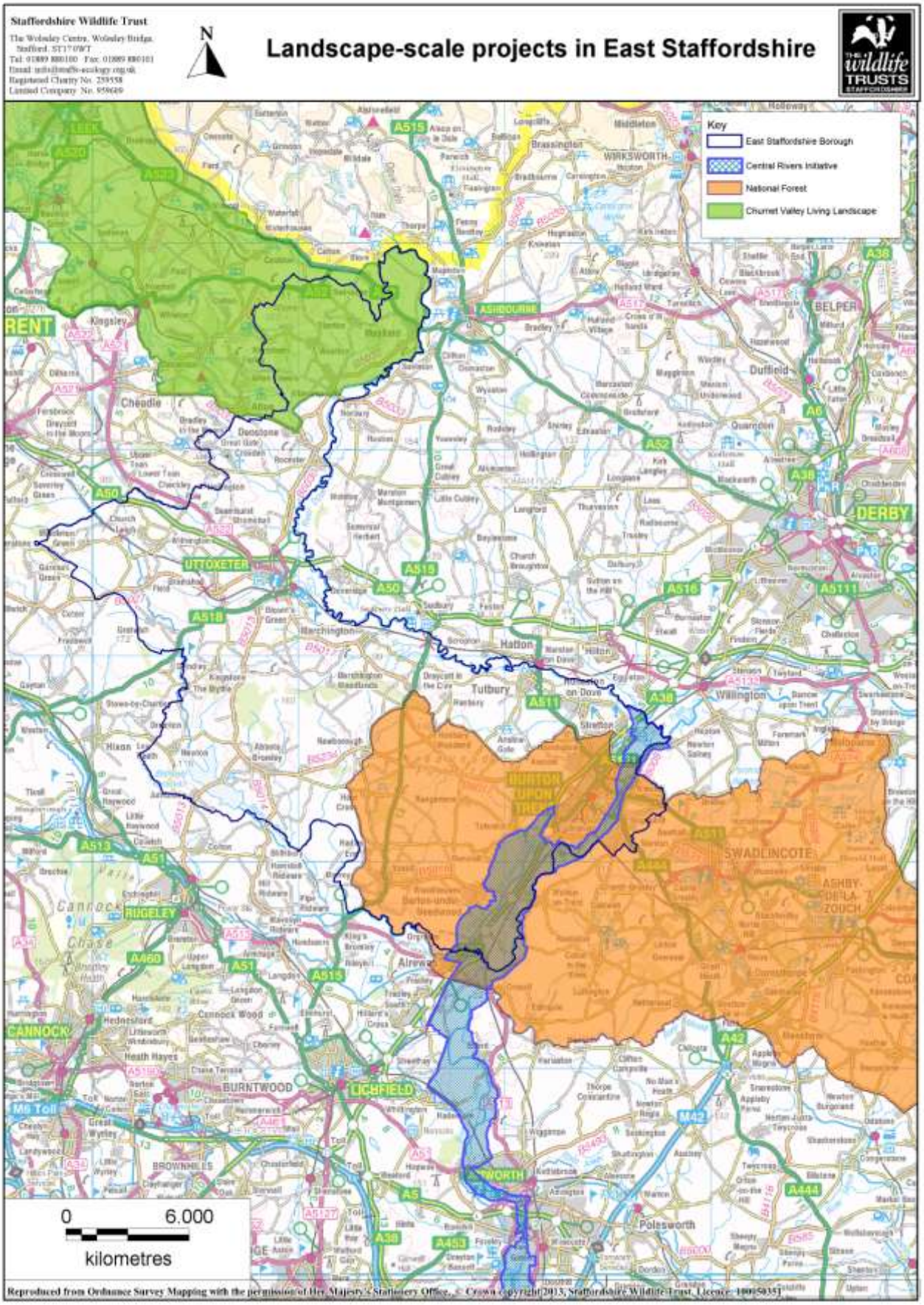


Figure 7 Landscape-scale projects in East Staffordshire

5 Brief Definitions for Biodiversity Action Plan Priority Habitat Types in East Staffordshire

(Source: Joint Nature Conservancy Council (JNCC), 2011).

- **Arable Field Margins**

Arable Field Margins are herbaceous strips or blocks around arable fields that are managed specifically to provide benefits for wildlife. The arable field must be in a crop rotation which includes an arable crop, even if in certain years the field is in temporary grass, set-aside or fallow. Arable field margins are usually sited on the outer 2-12m margin of the arable field, although when planted as blocks they occasionally extend further into the field centre.

- **Calcareous Grassland (Upland & Lowland)**

Upland Calcareous Grasslands occur on lime-rich soils situated above the upper limit of agricultural enclosure, both in the sub-montane and montane zones. Most examples occur above 250-300m altitude, but the habitat is also found within unenclosed moorland at lower elevations, and descends to sea level in north-west Scotland. Upland Calcareous Grasslands typically occur as components of habitat mosaics, which are generally managed as rough grazing land for domestic livestock. These are relatively rare upland vegetation types which support a wide range of uncommon species.

Lowland Calcareous Grasslands are found below 250m altitude.

- **Coastal & Floodplain Grazing Marsh**

Coastal & Floodplain Grazing Marsh is defined as periodically inundated pasture, or meadow with ditches which maintain the water levels, containing standing brackish or fresh water. The ditches are especially rich in plants and invertebrates. Almost all areas are grazed and some are cut for hay or silage. Sites may contain seasonal water-filled hollows and permanent ponds with emergent swamp communities.

- **Eutrophic Standing Waters**

Eutrophic Standing Waters are highly productive because plant nutrients are plentiful, either naturally or as a result of artificial enrichment. These water bodies are characterised by having dense, long-term populations of algae in mid-summer, often making the water green.

- **Heathland (Upland & Lowland)**

Lowland Heathland is described as a broadly open landscape on impoverished, acidic mineral and shallow peat soil, which is characterised by the presence of plants such as heathers and dwarf gorses. It is generally found below 300 metres in altitude in the UK, but in more northerly latitudes the altitudinal limit is often lower. Upland Heathland is defined as lying above 300 metres but below the alpine or montane zone at approximately 600-750m).

- **Hedgerows**

A Hedgerow is defined as any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less that 20m wide

- **Lowland Dry Acid Grassland**

Lowland Dry Acid Grassland typically occurs on nutrient-poor, generally free-draining soils with pH ranging from 4 to 5.5 overlying acid rocks or superficial deposits such as sands and gravels.

- **Lowland Fens**

Lowland Fens are peatlands which receive water and nutrients from the soil, rock and ground water as well as from rainfall.

- **Lowland Meadows**

Lowland Meadows are taken to include most forms of unimproved neutral grassland across the enclosed lowland landscapes of the UK. The habitat type is not restricted to grasslands cut for hay, but also takes into account unimproved neutral pastures where livestock grazing is the main land use. On many farms in different parts of the UK, use of particular fields for grazing pasture and hay cropping changes over time, but the characteristic plant community may persist with subtle changes in floristic composition.

- **Lowland Mixed Deciduous Woodland**

Lowland Mixed Deciduous Woodland includes woodland growing on the full range of soil conditions, from very acidic to base-rich, and takes in most semi-natural woodland in southern and eastern England, and in parts of lowland Wales and Scotland. It thus complements the ranges of upland oak and upland ash types. It occurs largely within enclosed landscapes, usually on sites with well-defined boundaries, at relatively low altitudes, although altitude is not a defining feature.

Often there is evidence of past coppicing, particularly on moderately acid to base-rich soils; on very acid sands the type may be represented by former wood-pastures of oak and birch.

- **Mesotrophic Lakes**

Mesotrophic Lakes (i.e. those in the middle of the trophic range) are relatively infrequent in the UK and largely confined to the margins of upland areas in the north and west. They are characterised by having a narrow range of nutrients.

- **Ponds**

Ponds, for the purpose of UK BAP priority habitat classification, are defined as permanent and seasonal standing water bodies up to 2 ha in extent and support habitats of international importance and/or species of high conservation importance.

- **Purple Moor Grass & Rush pastures**

Purple Moor-grass & Rush Pastures occur on poorly drained, usually acidic soils in lowland areas of high rainfall in western Europe.

Their vegetation, which has a distinct character, consists of various species-rich types of fen meadow and rush pasture. Purple Moor-grass *Molinia caerulea,* and rushes, especially Sharp-flowered Rush *Juncus acutiflorus*, are usually abundant.

- **Reedbeds**

Reedbeds are wetlands dominated by stands of the Common Reed *Phragmites australis*, wherein the water table is at or above ground level for most of the year. They tend to incorporate areas of open water and ditches, and small areas of wet grassland and wet woodland may be associated with them.

- **Rivers**

This habitat type includes a very wide range of types, encompassing all natural and near-natural running waters in the UK (i.e. with features and processes that resemble those in 'natural' systems). These range from torrential mountain streams to meandering lowland rivers.

- **Open Mosaics on Previously Developed Land**

These are generally primary colonisations and, as such, unusual in the British landscape, especially the lowlands. The vegetation can have similarities to early/pioneer communities (particularly grasslands) on more 'natural' substrates but, due to soil conditions, the habitat can often persist (remaining relatively stable) for decades without active management. Stands of vegetation commonly comprise small patches and may vary over relatively small areas, reflecting small-scale variation in substrate and topography.

- **Wet Woodland**

Wet woodland occurs on poorly drained or seasonally wet soils, usually with alder, birch and willows as the predominant tree species, but sometimes including ash, oak, pine and beech on the drier riparian areas. It is found on floodplains, as on fens, mires and bogs, along streams and hill-side flushes, and in peaty hollows. These woodlands occur on a range of soil types including nutrient-rich mineral and acid, nutrient-poor organic ones.

- **Wood-pasture & Parkland**

Wood-pasture & Parkland are mosaic habitats valued for their trees, especially veteran and ancient trees, and the plants and animals that they support. Grazing animals are fundamental to the existence of this habitat. Specialised and varied habitats within Wood-pasture & Parkland provide a home for a wide range of species, many of which occur only in these habitats, particularly insects, lichens and fungi which depend on dead and decaying wood. Individual trees, some of which may be of great size and age, are key elements of the habitat and many sites are also important historic landscapes.

Further information on SBAP priority habitat types and species can be found on the SBAP website (http://www.sbap.org.uk).

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