2.3.5 Natural Heritage

The Trent Valley landscape offers a wealth of ecological opportunities to restore natural floodplain processes and undertake habitat restoration.

The watercourses within our landscape have historically been heavily engineered and as a result have become disconnected from their floodplains.

There are opportunities to reconnect our natural heritage, particularly through the restoration of rivers, waterbodies and wetland habitats, important for so many rare, and sometimes threatened, species. Agriculture is the dominant land use across the landscape and as such, by working with farmers and landowners, offers potential for significant improvements to biodiversity through careful habitat management and conscientious farming practices.

Priority Habitats and Sites

Throughout our landscape there are a number of nature conservation designations of varying levels of European, National and Local importance and protection. The most significant of the designation types is that of



Toadflax at Tucklesholme (Nick Mott)

Special Area of Conservation (SAC). The River Mease SAC is 23 hectares in size and covers a number of counties including Staffordshire, Derbyshire and Leicestershire. The site is notified for a significant species assemblage that is of European importance, including such species as Otter, White-clawed Crayfish, Spined Loach and Bullhead. The site is also designated as a Site of Special Scientific Interest (SSSI).

The only other site which has been designated as being of national importance (SSSI) is the Old River Dove, Marston-on-Dove, which is situated on the Staffordshire/Derbyshire boundary. The site comprises a meander cut off from the present course of the river and is important for aquatic fauna and flora.

At the local level there are a host of Local Wildlife Sites (LWS) across the project area in both Staffordshire and Derbyshire. LWS are the best remaining examples of semi-natural habitats and species assemblages that are designated for their local importance. The sites are selected and designated following rigorous selection criteria, which ensures consistency. Whilst SACs and SSSIs receive statutory European and National levels of protection from issues such as development and inappropriate management, LWSs receive only very limited protection as part of the planning process at a local county, borough or district level.

In addition to the LWS, there are a series of Regionally Important Geological/ Geomorphological Sites (RIGS) which support locally significant examples of geology or land form and are designated by local committees. Two such sites are currently designated in our landscape: Sinfin Moor and Anchor Church, both of which are in Derbyshire. RIGS are the equivalent of LWS in terms their level of protection. Map 10 shows the current distribution of the various designated sites across the project area.



There are currently over 110 LWS throughout our landscape. The sites support an array of habitat types and species assemblages that are of importance including one of the largest remaining expanses of species-rich floodplain grassland in Staffordshire at Wychnor, and the continuum of wetland habitat communities that form The Washlands through the centre of Burton upon Trent.



Floodplain Meadows at Wychnor (Staffordshire Wildlife Trust)

Of the fifty-six habitats listed as priority habitat types in England, known as Habitats of Principal Importance, under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, at least twelve are known to occur within our landscape. These are **Coastal and Floodplain Grazing Marsh, Lowland Mixed Deciduous Woodland, Wet Woodland, Lowland Dry Acid Grassland, Lowland Fens, Ponds, Lowland Meadows, Reedbeds, Arable Field Margins, Hedgerows, Traditional Orchards and Rivers.**



Map 11 illustrates the coverage of seminatural habitats currently mapped within our landscape. Habitats have been classified as follows: very high value habitats are found within SAC and SSSI sites and are deemed to be of international, national, or regional importance; high distinctiveness habitats are found within local wildlife sites: medium distinctiveness habitats are covered by section 41 of the NERC Act but fall outside local wildlife site designation. Low distinctiveness habitats include arable land and improved or amenity grassland and negligible distinctiveness includes buildings and infrastructure such as roads.

River channel

Rivers are the lifeblood of the valleys' wildlife. River corridors – and their linked floodplain habitats – provide a wealth of opportunities for a dazzling array of species.

Unfortunately, the majority of our main rivers have been historically engineered

into deeper and straighter channels to reduce the frequency of flooding to nearby farmland and settlements. In this way our rivers have been disconnected from their floodplains, and the habitats along the river corridor and wider valley have been impoverished or destroyed completely.

A recent change in the philosophy of flood risk management has meant that we are now in the position to restore natural function to important areas of our floodplains, rivers and catchments. This, in turn, is acting as a catalyst for practitioners to help 'rebuild' biodiversity at a landscape-scale. This is obviously great news for habitats and species, but there are also wider benefits for society. These benefits include a more attractive landscape, increased economic activity in terms of leisure pursuits and visits to the area, natural flood defence, increased water quality, replenishing of groundwater storage areas, soil protection and resilience to changes influenced by a changing climate.



The RiverTrent at Branston, a modified and monotonous stretch of bank (Nick Mott)

Wetland habitat

Wetlands are specific habitats which form where land is permanently or seasonally waterlogged, creating distinct ecosystems. Wetland habitats form in a variety of ways: along topographical depressions where water collects; along river and stream floodplains; in areas where there are springs and seepages; and in locations where drainage is impeded due to the geology. Wetland habitats are an important feature of our landscape and the majority of significant wetland habitats are associated with the floodplains of the Rivers Trent and Dove, the river network itself, and ponds, which are an important resource within the farmed environment outside of the floodplain. Wetland habitats can provide an important ecological resource for a wide range of associated species. Most wetland habitats are Habitats of Principal Importance (HPIs) and are a priority for conservation in the UK.

The most widespread priority habitat within the landscape is Coastal and Floodplain Grazing Marsh, however there are also small areas of Lowland Meadow, Reedbed, Ponds and Wet Woodland.

Many wetlands, like the ones within our landscape, are within low lying, accessible and fertile land, which can be highly productive for agriculture. Because of this many of our wetlands have been drained to improve access for machinery and increase the season of productivity. This has resulted in widespread drying-out of wetland habitats and elevated nutrient levels associated with artificial fertiliser inputs, which has altered the ecosystem structure and reduced the biodiversity of many of our wetlands. The river networks are also heavily engineered to speed up water flows in order to reduce localised flooding and stop bank erosion. River channels have historically been reinforced, deepened and straightened along large sections of the water course which limits the natural functioning of the river. Ponds have also disappeared from our landscape with many being filled in to increase productive land cover and accessibility within field parcels. As a result, our wetlands no longer effectively perform the natural services that they would normally provide were they in a more natural state; services such as managing flood risk in residential areas, water quality management, providing a natural nutrient resource, storage of drinking water and carbon sequestration as well as providing a haven for wildlife.



Created backwater off lake at Elford south (Nick Mott)

Lakes and ponds

Our landscape is host to large numbers of both lakes and ponds. The vast majority of the lakes are man-made and the result of the extensive mineral quarrying in the locality. With a succession of lakes of varying size and ages of establishment, the sheer number is a huge contributing factor to the area's rich avian fauna.

Quarry restoration methods over the last two decades have moved on considerably; recent restoration has focused on creating a functioning ecosystem rather than a large body of water attempting to link to watercourses.

As a contrast to the lakes, ponds throughout the project area have a range of differing origins. Some, like the network of ponds sited on Pulverised Fuel Ash (PFA) at Branston are man-made in recent times and now support a diverse species assemblage, while others have formed from the shallows and depressions left by marl extraction on farms. One of the major



Pond at Barton Quarry (Nick Mott)

contributing factors to the decline in the condition of ponds has been the lack of appropriate management. Issues such as sediment build-up, leading to a decreasing quantity and quality of water, dense tree cover, leading to increasing shade and leaf litter collection adding to sediment content, starve the pond of both oxygen and light. Limited and very occasional management can prevent these issues gaining a substantial foothold.

Connected farmland

The largest portion of land use within our landscape is agricultural land, which makes up roughly 75% of the project area (see Map 12). The predominant farming type is arable (approx. 45% coverage) with pasture mainly restricted to the floodplain and the north-west of the project area (approx. 30% coverage). Much of the farmland is intensively managed, however, there are areas of agricultural land supporting less intensively managed semi-natural habitats. These have been identified around Wychnor, Rolleston-on-Dove and within the Burton Washlands, and are designated as Local Wildlife Sites.



The high proportion of intensively managed farmland has limited the amount of remaining semi-natural habitat, which is an important ecological resource. Intensive farming produces non-natural monocultures in large field units with high nutrient and pesticide inputs that are significantly altered from the natural environment and support relatively poor biodiversity. The fragmentation of our semi-natural habitats means that these areas become isolated "islands" of biodiversity, which are limited in their capacity to increase and disperse wildlife populations and are threatened through further encroachment, mismanagement and external influences such as pollution inputs, nutrient enrichment and climate change.

Connected farmland is the idea of developing semi-natural connections within the farmed environment to improve the free movement of species, buffer areas of existing biodiversity interest, and improve the accessibility to a food resource for wildlife. At the basic level it includes improving and increasing linear habitat infrastructure such as adding in hedgerows, buffer strips and ditches as well as retaining in-field trees, taking field corners out of management, buffering water courses and undertaking strategic tree planting.

Further improvements can be made by actively restoring and creating Habitats of Principal Importance (HPIs) which support a much wider range of species. Taking these measures to strategically connect remaining semi-natural habitat within the farmed environment will improve the resilience of many species to further losses and start to promote recovery.

Supporting the natural environment will be mutually beneficial to the land managers who benefit from the ecosystem services provided naturally such as pollinators, biological pest control, maintenance of soil structure and fertility, nutrient cycling and hydrological services. This vision of a more connected agricultural landscape is multi-functional and looks at working to meet the needs and demands of all users of the agricultural environment in a coordinated, strategic approach looking at the landscape as a whole.

The current agricultural setup favours intensive agricultural production. There is high demand for a wide variety of produce at cheap prices, which is heavily subsidised through the Basic Payment Scheme funded through the EU. The existing system was introduced in 1962 as the Common Agricultural Policy (CAP) system of subsidies. Historically the CAP promoted a large expansion in agricultural production encouraging heavy use of fertilisers and pesticides to increase productivity which had a significant detrimental impact on the natural environment.

The CAP was revised in 2004 and now imposes environmental standards to limit the damage to the natural environment, reducing subsidies as a penalty if standards are breached. The reformed CAP, whilst advocating environmental protection measures, does not alone mitigate for previous losses, and further financial support is offered in the form of agri-environment schemes designed to implement the recovery of the natural environment. The funding for these schemes is limited and there is an application process for admission. Only around 5% of the project area is currently managed under a live stewardship scheme. As the majority land use across our landscape is agricultural, looking at how we can support and work alongside landowners and land managers to contribute to restoring key habitats and species populations is an important target.

Farmland for birds

Farmland birds are defined as species which feed on open farmland during the breeding season even though they may nest in habitats such as woods and hedges. Our landscape is particularly important for a number of farmland bird species as it contains a range habitats capable of supporting a diverse suite of species, the large swathes of arable land in the Trent and Dove valleys provide opportunity for breeding Grey Partridge and feeding opportunity for numerous other species. The large areas of seasonally inundated permanent grassland and pastures throughout the project area support breeding populations of Lapwing, Skylark and Yellow Wagtail, whilst the associated hedgerow field boundaries and scrub support populations of Goldfinch, Greenfinch, Yellowhammer, Linnet, Whitethroat, Kestrel and Tree Sparrow, species which have declined dramatically in both number and distribution in the recent past. Reedbeds and other associated riparian habitats throughout the landscape provide opportunity for multiple species such as Reed Bunting and roosting sites for Starling.

The large wetland complexes of scrapes, lakes, pools, reedbeds and wet grassland

present throughout our landscape as a result of both ongoing and previous mineral extraction as well as seasonally high water levels are an important resource for overwintering waders and wildfowl providing suitable shelter and acting as a vital feeding ground.

Farmland birds can be used as generalist indicator species of the farmed environment because they sit toward the top of the food chain. The British Trust for Ornithology (BTO) have been monitoring the population of common birds nationally since 1967 via the Common Bird Census. In 1993 the BTO categorised birds based on their dependant habitat; from this, 28 species were identified as farmland birds (those which feed in open farmland in the summer), 19 of which were considered to be suitable for monitoring.

Analysis carried out in 2007 found that the population of farmland birds have suffered dramatic declines in the past five decades, with only a handful of species showing positive trends in terms of their population size. Of all the 19 species analysed, it was found that there was an average 48% decline in population between the years 1970 and 2007; the largest declines were observed during the 1970s and 1980s



Farmland adjacent to the water course (Nick Mott)

with a gradual slowing of the decline in more recent years. Tree Sparrow was the most severely declining species with a population decline of 94% between the years 1970 and 2007 (RSPB, 2018).

The practices of farmers and land managers are vital in providing habitat for farmland birds through the sympathetic management of land to both stay productive and support breeding bird populations. Countryside Stewardship Schemes (CSS) will go some way to provide a financial incentive to manage land sensitively. In arable areas, techniques such as rotational set-aside, fenced margins and buffer strips, and conservation headlands provide a range of different options at different scales to fit in line with any current management regime.

The sowing of wild bird seed cover crops, diversification of crop types, establishment of beetle banks, refraining from the use of pesticides until later in the growing season, and abstaining from using broad spectrum pesticides until pest burden is exceeding economic thresholds will help to provide important food sources for a wide variety of farmland birds during the breeding season when plentiful sources of food are most required. Spraying and cultivating stubbles as late as possible will also provide important winter feeding habitat.

Grassland management for the benefit of breeding farmland birds may consist of altering grazing regimes. A lower stocking density in spring will allow for ground nesting birds and avoid any unwanted nest trampling; a heavier stocking density at the end of the growing season will result in patches of tussocky and tightly grazed grassland to provide for ground nesting birds the following year. The blocking of land drains to impede drainage from fields will create water-logging and seasonally wet areas that will benefit invertebrate loads in the spring and provide food for chicks. Delaying silage cutting or considering moving to a more traditional hay meadow management will be of benefit to multiple bird species.

In terms of provision of associated breeding habitats, the reinstating of old hedgerows or creation of new hedgerows and sympathetic management of these outside of the bird breeding season will provide more opportunity for farmland bird species to colonise.



Green Infrastructure in Urban Areas

The importance of green infrastructure cannot be overstated. Access to parks, gardens and green corridors is vital to the health and wellbeing of a community in a liveable environment. In urban areas green infrastructure helps with clean air, water management and bringing wildlife into towns and cities. At a small scale green infrastructure techniques can include elements such as green roofs, Sustainable Drainage Systems (SuDS) and green networks including cycle ways. The process of rapid intense urbanisation over the latter half of the Twentieth Century took a huge toll on the extent and availability of green space in the urban environment. Our scheme, working with partners, will aim to take sites such as The Washlands in Burton-upon-Trent and establish their full potential as multifunctional urban green space by utilising the current infrastructure and nature conservation potential while providing flood resilience.



Burton Washlands (Nick Mott)

Provision of Ecosystem Services and Natural Capital

Our natural assets such as water, soil, air, biodiversity and geology form the natural capital needed to provide many ecosystem services that we rely on. We depend on this natural capital to provide resources such as raw materials like food and water as well as providing services such as pollution regulation, flood water storage, climate regulation, pollination, education, recreation activities as well as health and well-being. Degradation of these natural assets can lead to an under supply of ecosystem services (Hölzinger and Everard, 2014), due to high quality habitats having a higher natural capital than degraded and altered habitat types.

Our scheme will aim to calculate the monetary value of the habitat creation and restoration work undertaken. In addition to the habitat related work there will be other ecosystem services benefits in terms of water quality improvement, soil protection and flood alleviation.



Canoes on the RiverTrent (Nick Mott)

2.3.6 Current Management

Management across the landscape is often intensive, as in the case of farming and guarrying, and attempts to reconcile the needs of industry and wildlife can meet with conflict and concern. Some areas of land benefit from European, national or local designations, whilst historical structures and sites may have listed or protected status; but designations are not always strictly adhered to. There are large areas of our landscape that have no formal protection and it is through working with landowners and land managers that we can protect and restore some of the most valued parts of our landscape and start to reconnect important places for wildlife.

The Trent Valley is a landscape unified by its river network, with the rivers Trent, Dove and Tame at its heart. Much of the land is farmed intensively for both arable and pasture, with the latter often being the predominant management in the floodplain. Large farming enterprises such as Mercer Farming Ltd. operate in the area. A further key industry in the area is quarrying, with sand and gravel extraction occurring across a number of active quarries, particularly along the River Trent south of Burton-upon-Trent. In the centre of the town, the Burton Washlands are mainly managed by East Staffordshire Borough Council for a mixture of amenity and pasture grassland. To the north of this area, Severn Trent Water manages pasture around the pumping station.

The Trent Valley floodplain and river network is influenced heavily by this human activity, with historical engineering changing the shape and structure of the river, which affects its functionality. The floodplain is impacted by intensive farming and quarrying which affects the natural processes that occur in the floodplain. The altered landscape is limited in its capacity to provide a rich and diverse haven for wildlife as well as limiting its economic provision such as flood alleviation and clean water supply.

Mixed landownership means that sites of historical interest - palaeontological or archaeological sites, scheduled monuments and listed buildings - fall under various ownership and therefore various management and care. The same is true for rights of way. Access across private land varies in its quality and upkeep as not all landowners keep their obligation to maintain rights of way as open, and local authorities are stretched in their resources to pursue failures in meeting these obligations. It is often the case that the well-used routes are naturally open, whilst the lesser-used routes become overgrown, furniture (gates, stiles, bridges etc.) falls into disrepair, and the routes often becomes lost on the ground.

Management of the natural environment

Our landscape is subject to a number of different designations that help to protect it, but also dictate how it should be managed. The River Mease Special Area of Conservation (SAC), east of Alrewas, is designated as a site of international significance. It is also one of two Sites of Special Scientific Interest (SSSI), the second being the Old River Dove, Marston-on-Dove SSSI, south of Rolleston-on-Dove, which is monitored by Natural England and must be maintained in favourable ecological status.

There are forty Local Wildlife Sites and 26 Biodiversity Alert Sites throughout the project area in Staffordshire with fewer local designations of this type (four) within Derbyshire (LUC 2018). Local Wildlife Sites do not have legal protection, however the local planning authority is notified of all sites and it is their policy, where possible, to protect these sites from damaging development. There is no obligation on the landowner to manage a Local Wildlife Site, but this is encouraged.

For the various quarry companies there will be an agreed minerals restoration plan for biodiversity gain following completed extraction, which is undertaken and monitored under the guidance of the County Council. There is the opportunity to



Tucklesholme Restoration Plan Nov 13

feed into the development of the minerals restoration plans and quarry companies do consider the landscape character and the biodiversity requirements of the location when restoring a site for wildlife conservation. The Tucklesholme restoration is a demonstration of this.

The proportion of land within schemes such as Environmental Stewardship, Countryside Stewardship and the Woodland Grant Scheme can act as proxy for land that is currently in active favourable management.

Within our landscape the most recent Environmental Stewardship data available (2016) shows there are 21 live schemes within the Staffordshire section. This represents coverage of just 5.7% of the area (1,133 hectares out of the 19,950-hectare landscape) and demonstrates the huge opportunities to reconnect our landscape. Map 13 shows the distribution of landholdings currently in Environmental Stewardship.



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The area itself is not identified as a priority area by Natural England for Highertier agreements. Mid-tier agreements, whilst available, comes with no support or guidance from Natural England. This highlights an obvious need that will be fulfilled by our scheme.

Through the Living Floodplains project, the Living Floodplains Officer will be able to work directly with landowners offering advice and support in accessing environmental stewardship grants. The officer will also be able to provide practical advice on managing farmland sustainably for wildlife and the environment, and will be well placed to encourage and enable networks of landowners to work together, creating a coordinated approach to sustainable land management.

The Community Grants Scheme will open opportunity to access small grants that will benefit a large number of projects across the landscape. This small grant scheme that we will administer can be used to encourage communities and local landowners such as Parish Councils and schools to consider land use in their community and how it can be better managed for the benefit of nature or heritage conservation and protection.

Management of the cultural and historic environment

There are hundreds of known sites across the landscape of historical interest ranging from the early prehistoric through to the modern day. These are noted in broadclass types, including agriculture and subsistence (ridge and furrow, field boundary etc.), domestic (settlement, moated sites, country house etc.) and industrial (mill, brewery, kiln etc.). These sites are categorised by condition and vulnerability and a list of priority sites has been identified. Historic England maintains a register of Heritage at Risk. Map 14 shows the distribution of designated cultural heritage sites.





There are 19 sites listed within our landscape as currently at risk. Twelve of these are scheduled monuments, six are grade II listed buildings, two are grade I listed buildings and one is a registered park (some sites have multiple listings). These range in condition from deteriorating to very poor, however eight are unknown.

The risk to heritage assets is primarily related to human activity or inactivity.

The most common risks to heritage assets within the study area comprise agricultural activity, mineral extraction, settlement expansion and urban development, and neglect of heritage assets (ArcHeritage, 2017).

The Heritage at Risk projects will work with landowners to identify management techniques that can be used to bring heritage assets into a more favourable condition. There is opportunity for the Living Floodplains and Heritage at Risk projects to work together with landowners to protect both the natural and cultural heritage. An important threat to archaeology is from ploughing as modern techniques cut deeply into the top soil and the subsoil deposits below. Earthwork assets can be destroyed by

levelling and also tree roots, for example, and so it is important to strike a balance between economic need, cultural need and environmental need. Map 15 shows the distribution of heritage assets that have been identified in the landscape as a priority for conservation.

Map 15. Distribution of priority heritage sites for conservation



The Community Grants Scheme will enable small grants to be accessed that can be used to protect and preserve some of the key heritage features of the landscape. These will be identified in partnership with local communities, but could be used to utilise small structures like pill boxes through reversible conversion into other uses, such as 'pop-up' museums or exhibitions. Archaeological features could be identified and interpreted to encourage communities to understand and respect these assets; similarly, new paths, or access points could be created to either improve accessibility to historical features, or to discourage people from trampling and eroding sensitive sites.

Current Training provision

There is a clearly a wealth of knowledge and understanding regarding the cultural and natural heritage of our landscape that is held within communities, but opportunities to access this knowledge are limited. Organisations such as Support Staffordshire encourage volunteering within the landscape, however opportunities for volunteers to become engaged in natural or cultural heritage projects are limited. Burton Conservation Volunteers are a group seeking to improve the environment, promote wildlife conservation and encourage community awareness and are affiliated with the national charityTCV (formerly BTCV). The group undertakes practical tasks throughout the year across a wide extent of the landscape, supporting projects in community gardens, special needs schools and public open space. Opportunities to engage in training and learn practical conservation skills are still limited.

There are a number of active local history groups across the landscape, such as the Rolleston CivicTrust, who have an interest in the preservation and conservation of local history, and a number of local historians who hold archives covering the history of the area. These people represent local, passionate individuals with an interest in local history and heritage, but opportunities to engage a wider audience of volunteers in gaining the necessary skills in heritage surveying and conservation are limited.

There are a number of proactive walking groups in the landscape, particularly the Ramblers Association, and a number of the local Ramblers Groups have engaged in our scheme to assist in surveying rights of way. Funding cuts to local authorities will mean that certain rights of way will suffer from reduced maintenance and it will fall to local communities to maintain routes they consider significant.

We have identified a need to offer training and skills placements to young people coming into the workforce, and the training of local volunteers who will be empowered to continue a legacy of natural and cultural heritage surveying and conservation into the future.

Stakeholder interest and potential concerns

Loss of income is a primary concern for landowners looking to take their land out of intensive farming management. This can be addressed through a variety of incentives including Countryside Stewardship, Environmental Stewardship and other grants. The Living Floodplains project can also provide access to biodiversity offsetting and other capital funds if agreements are put in place to alter the way land is managed.

Grants for managing historical assets are available through Historic England and our cultural heritage projects will enable landowners to protect their assets by providing advice and practical support, for example undertake reversible conversions of pillboxes.