Oxford to Cambridge Arc - Environmental Improvement Opportunities

April 2020

Introduction

The overarching objective of the Oxford to Cambridge (OxCam) Local Natural Capital Plan (LNCP) is to enable delivery of **environmental protection and enhancement** in the OxCam Arc. Baseline mapping of existing environmental assets allows us to see the most important assets, and the benefits and values that flows from them, that should be protected. In order to determine what should be enhanced and where, we need to map opportunities for environmental improvement.

We have held workshops and discussed the best way to do opportunity mapping with stakeholders and users of LNCP outputs to inform how we can best support improvements to the environment via this work. Based on this, we decided to collate the variety of environmental improvement opportunity areas and projects already identified across the Arc in a single location. Doing this will allow those that have developed this thinking, and are basing their decision-making on these maps, to consider where there is join-up across different sectors and overlapping priorities. It also helps link the LNCP into existing policy implementation, where these opportunity maps are tied into policy; for example Local Plans. In the future we are proposing to delve further in and identify where opportunities could deliver a range of Natural Capital benefits, or the highest provision of Ecosystem Services, across the Arc.

About this report and what it shows

This reports highlights the opportunities and priority areas that our partners have shared with us, from across the Arc already. By necessity, to make the content visible and meaningful they have been broken down into different maps although we would encourage organisations to work across these maps and consider the opportunities together. **Our ultimate aim is to include these maps on a web portal showing interactive map layers, together with our baseline for context**, however this static report has been produced as a first step to provide information on the types of opportunities in existence and to link to where they are hosted and where to find out more information.

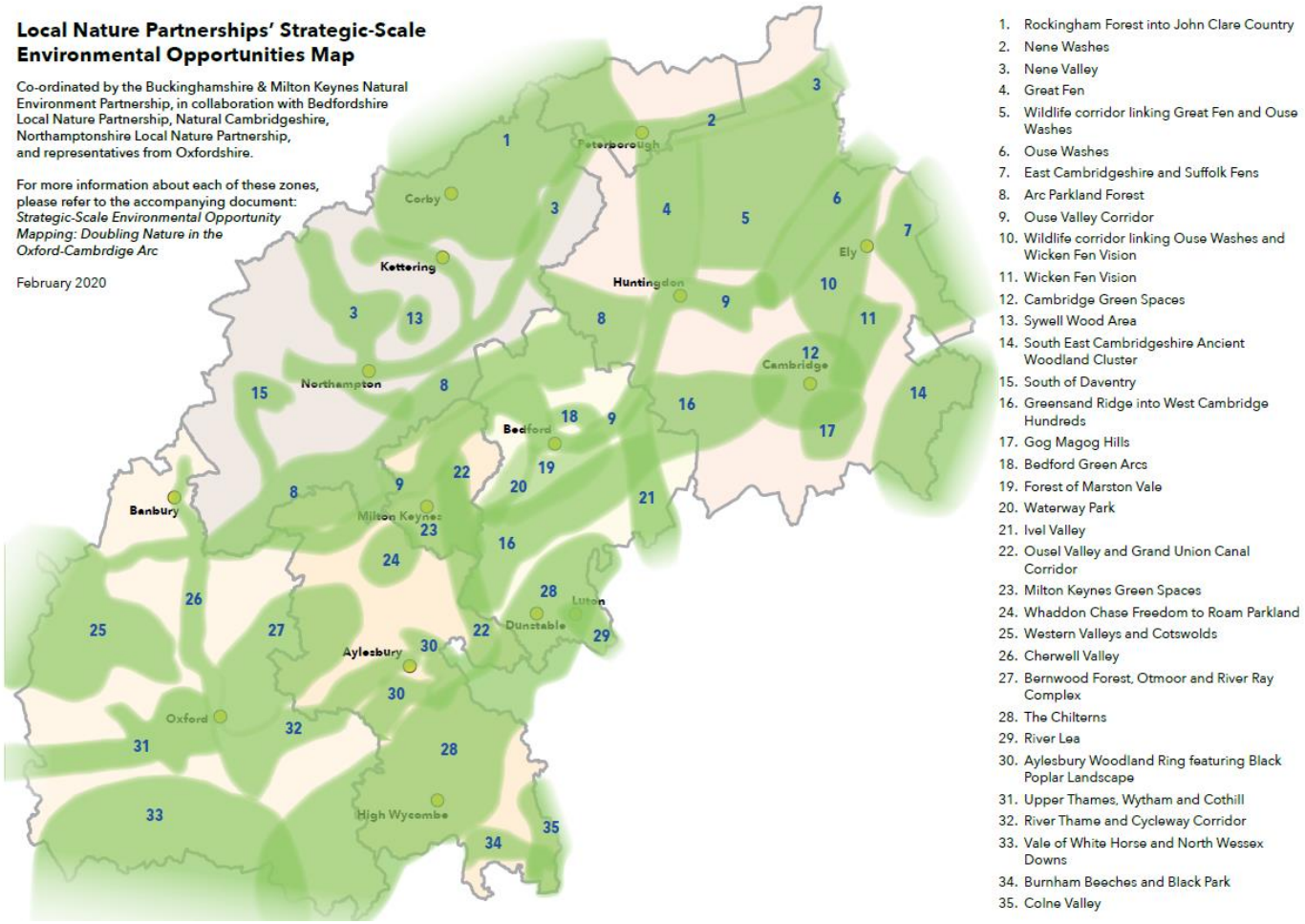
The main purpose of the collation of opportunities within this report is to display them all together in one place. It provides easy access to enable others to identify where there are opportunities to improve the environment currently within the Arc. Ensuring that the opportunities are accessible in the same place also allows people to see **where projects and organisations can link together** to improve chances of project uptake and the delivery of multiple benefits.

As mentioned in the introduction, we are in the process of exploring an online web map where these opportunities can be hosted that will allow people to zoom in to different locations and see the various opportunities and green infrastructure and biodiversity focus areas. As you go through this document you will see that some areas seem void of data, this is not because the opportunities do not exist but due to the fact that we have not yet received submissions for these areas. This is a key reason for the production of this report, **if your information is not shown on the maps below, please get in touch (oxcamlncp@environment-agency.gov.uk) so that we can include them in the final product.**

Opportunity Mapping for the Arc - The data picture so far

1. Local Nature Partnerships Opportunity Areas

The Local Nature Partnerships covering Bedfordshire, Buckinghamshire and Milton Keynes, Cambridgeshire and Northamptonshire, along with representatives of the Oxfordshire Environment Board and local authorities, have produced a collaborative map to illustrate the priority strategic-scale environmental opportunity zones in the Oxford-to-Cambridge Growth Arc. To find out more information about any of these areas please contact the Local Nature Partnerships.



The map shows:

Green numbered zones	These are strategic-scale and collectively-agreed areas of high environmental value and opportunity and large-scale investment potential – for example to create or enhance biodiversity, habitats and/or green infrastructure. The accompanying guidance document provides further information on the opportunities.
Cream areas	Areas of more local-scale opportunity and investment potential. Opportunities for nature exist throughout these areas, but at the smaller-scale and could be away from centres of population. Smaller-scale opportunities are still hugely valuable for nature and local communities, and serve as corridors and stepping-stones for wildlife to move between larger sites and habitats – which improves the resilience of wildlife to external

pressures such as development and climate change. Positive action in these areas could include nature-friendly farming, restoration and creation of orchards, meadows and other landscape features and involve local authorities, parish councils, community groups and individuals.

2. National/Regional Opportunities

Both government and non-government bodies have produced maps at national and regional scales to identify areas that have potential for environmental improvement. We have shown these in Figure 1.

i. Priority habitats networks

Natural England's (NE) Priority Habitat Networks. These are potential Habitat Networks for 18 priority habitats based primarily, but not exclusively, on the Priority Habitat Inventory with additional data added in relation to habitat creation and potential areas for restoration. Further information and data are available to download here[i]. Across the OxCam Arc, NE have identified 14,991 hectares of land as potential 'Network Joins'[1] and 'Fragmentation Action Zones'[2].

ii. Heathland habitat creation

The RSPB have mapped the extent of all the lowland heathland in England and have also mapped the expansion potential of the surrounding land for heathland creation. They have highlighted 5,611 hectares within the Arc which have heathland creation potential. For more information and to download the data please visit here[ii].

iii. Future potential for wetlands

English Heritage, Environment Agency, Natural England, RSPB & The Wildlife Trusts have created a series of maps that look at historic wetland extent, current wetlands and the potential for habitat creation. The report can be found here[iii].

iv. Organisational aspirations

The National Trust (NT) owns 10,634 hectares of land within the Oxford to Cambridge Arc, across 49 sites. NT's high level aims and aspirations for habitat management across their landholding is summarised below.

NT's strategy is to help play their part in restoring a healthy, beautiful, natural environment; their main priority within this is ensuring all NT land can be seen as "High Nature Status", which they define as:

- All existing priority habitats are in good condition and rich in wildlife.
- They will make more 'space for nature' through restoring and creating more habitats.
- They will make most of opportunities for other features that are valuable for wildlife such as hedgerow trees, nest boxes and birdseed strips.
- Farming or land management practices are appropriate to the location and are 'wildlife friendly'.
- Land management is joined up making sure that these elements are working together as a whole to benefit wildlife.

We have also highlighted Thames Water's Biodiversity Improvement sites. These are sites where Thames Water we will be undertaking biodiversity enhancements over the next five years, they are their key sites for environmental improvements with respect to biodiversity/wildlife.

[1] Locations where habitat creation could help to link up existing clusters of habitat patches across a landscape.
[2] Land within Enhancement Zones that connects existing patches of primary and associated habitats which are currently highly fragmented and where fragmentation could be reduced by habitat creation.

v. Existing sites of conservation interest

Opportunities should not be restricted to creation of new habitats/natural capital assets. Many of our existing valuable natural capital assets would benefit from enhancement. The quality/condition of a habitat is very important in determining the provision of services that a habitat can provide.

Within the Arc around 20,000 hectares of land are designated as a Site of Special Scientific Interest (SSSI), this is 1.76% of the total Arc area. These are nationally important sites for nature conservation and/or geological interest. At present less than half of the SSSI area in the Arc is in a favourable condition, so restoring these sites offers a significant opportunity for environmental improvement.

Condition	Area Hectares	Percent
Destroyed	18.22	0.09%
Unfavourable Declining	237.59	1.17%
Unfavourable No Change	1639.23	8.10%
Unfavourable Recovering	8805.3	43.48%
Favourable	9549.1	47.16%
Total	**20249.45**	

Local Wildlife Sites are identified at the county level and are sites of regional importance. We have not mapped these here, but it is important to bear in mind the potential for improvements to these sites when considering local and regional opportunities.

vi. Improving existing environments - WFD River Waterbodies

The purpose of the Water Framework Directive (WFD) is to establish a framework for the protection of inland surface waters, estuaries, coastal waters and groundwater. To achieve this environmental objectives have been set. For more information about the WFD please visit this website[iv].

We have mapped WFD waterbodies separate to the other datasets. Figure 2 shows the overall status of all the designated waterbodies which are within the Arc. This is a static report so the map is not yet interactive. Figure 3 shows a subset of maps which shows waterbodies that are failing for specific reasons. You can find the reasons for waterbodies not achieving good status at data.gov.uk. The Environment Agency has many potential projects/ideas to improve the waterbodies that have been determined through understanding what is required to improve the status of each waterbody. For more information on WFD or you would like more information on potential projects, please contact your local Environment Agency Area Team.

vii. Mapping for woodland creation to reduce diffuse pollution and flooding

The Environment Agency commissioned Forest Research to provide GIS spatial datasets and maps which identify opportunities for woodland creation to reduce diffuse pollution and flood risk across England and Wales. These maps were used by Forestry Commission England and its partners to target Countryside Stewardship (CS) grant aid for woodland creation. The maps can also assist the Environment Agency and partners to target woodland planting outside CS as part of their river catchment management projects.

The national opportunity maps identify priority areas where woodland planting could deliver positive outcomes for water quality and/or flood risk management in England and Wales. The maps identify priority areas (at a scale of 1 km²) in catchments of river waterbodies at risk of failing good status due to diffuse pollutant loads (Nitrate, Phosphate, Sediment, Pesticides and Faecal Indicator Organisms); areas at risk from flooding from rivers and surface water and priority areas where runoff from soils is rapid and finally include information on constraints to woodland planting.

A report[v] describing the methodology and data used to generate the maps (5934K) is available, the dataset is used by the Environment Agency however the dataset cannot be shared due to licensing conditions of the data that was used to derive it.

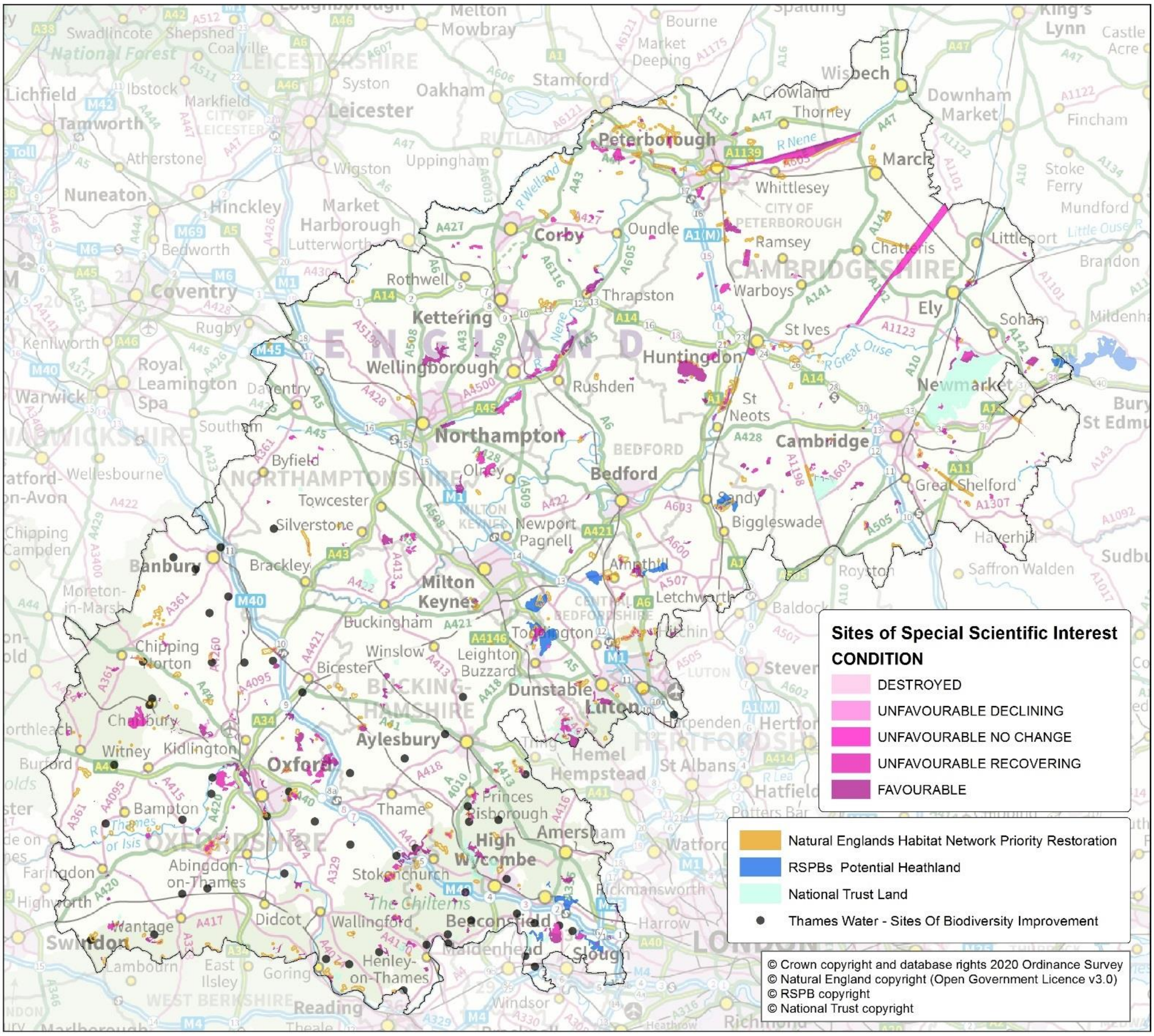


Figure 1: Cross-Arc map of national/regional opportunities: Natural England's National Habitat Networks Mapping, Potential Heathland, National Trust land and Thames Water sites of biodiversity improvement

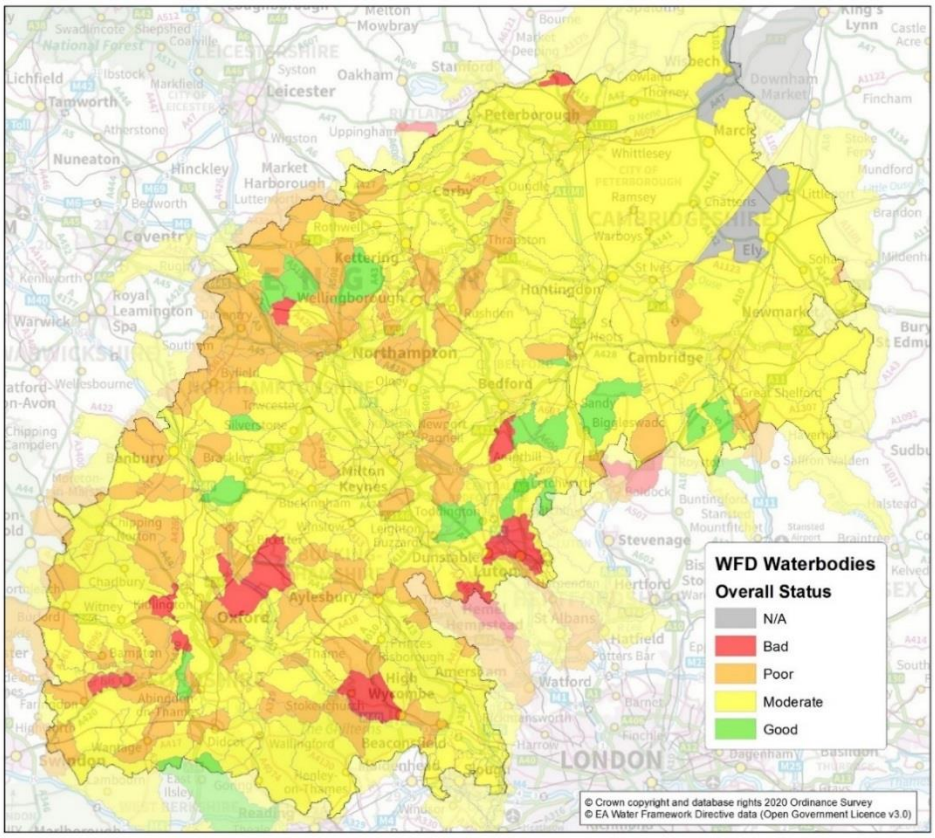


Figure 2: Water Framework Overall Status for waterbodies across the Arc

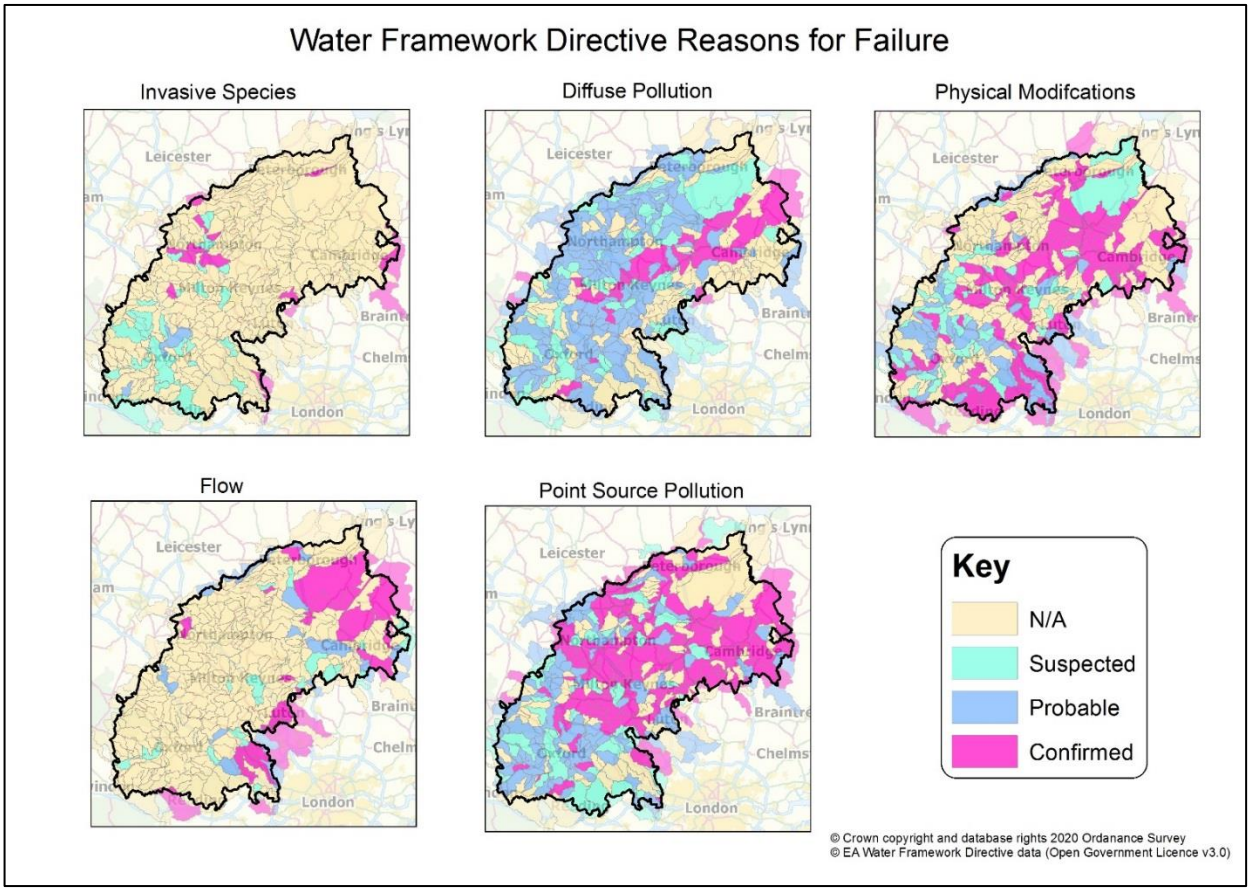
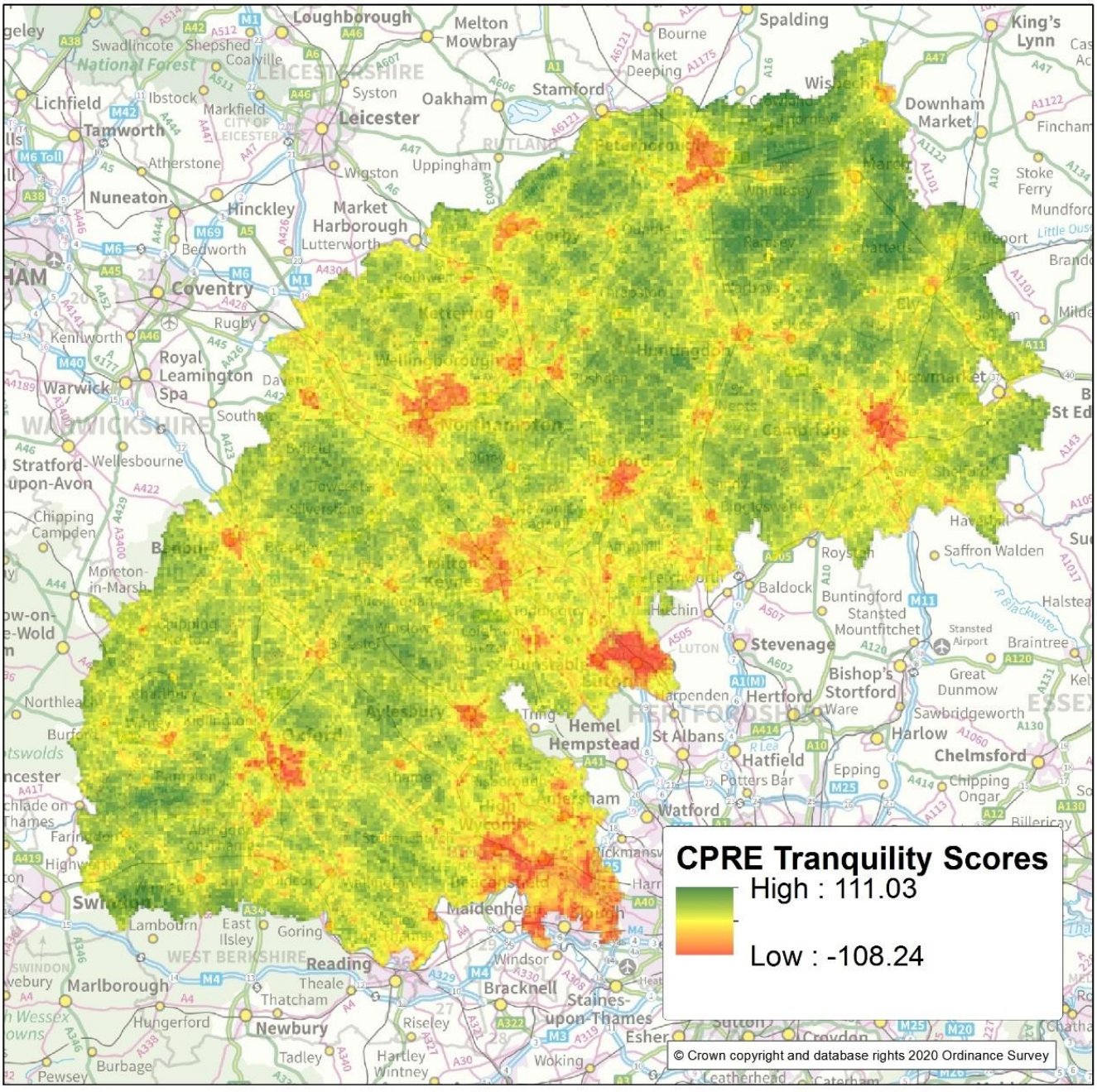


Figure 3: Cross-Arc Water Framework Directive Reasons for Failure to meet 'Good' status

5. Tranquillity Mapping

The National Planning Policy Framework (NPPF, paragraph 180) encourages the definition and protection of tranquil areas in Local Plans. The Campaign to Protect Rural England's (CPRE) mapping below provides an important layer of analysis, including noise pollution, visual intrusion into the landscape, or the lack of it, as well as people's ability to perceive natural features and wildlife. CPRE highlight that areas which perform strongly on lack of both noise and visual intrusion are likely to be particularly important environmental opportunity areas for people to enjoy quiet recreation and improve their health and wellbeing. They may also be particularly important for many priority species, as absences of light pollution and intrusion from roads particularly help species such as bats and insects, as well as the movement of other species.

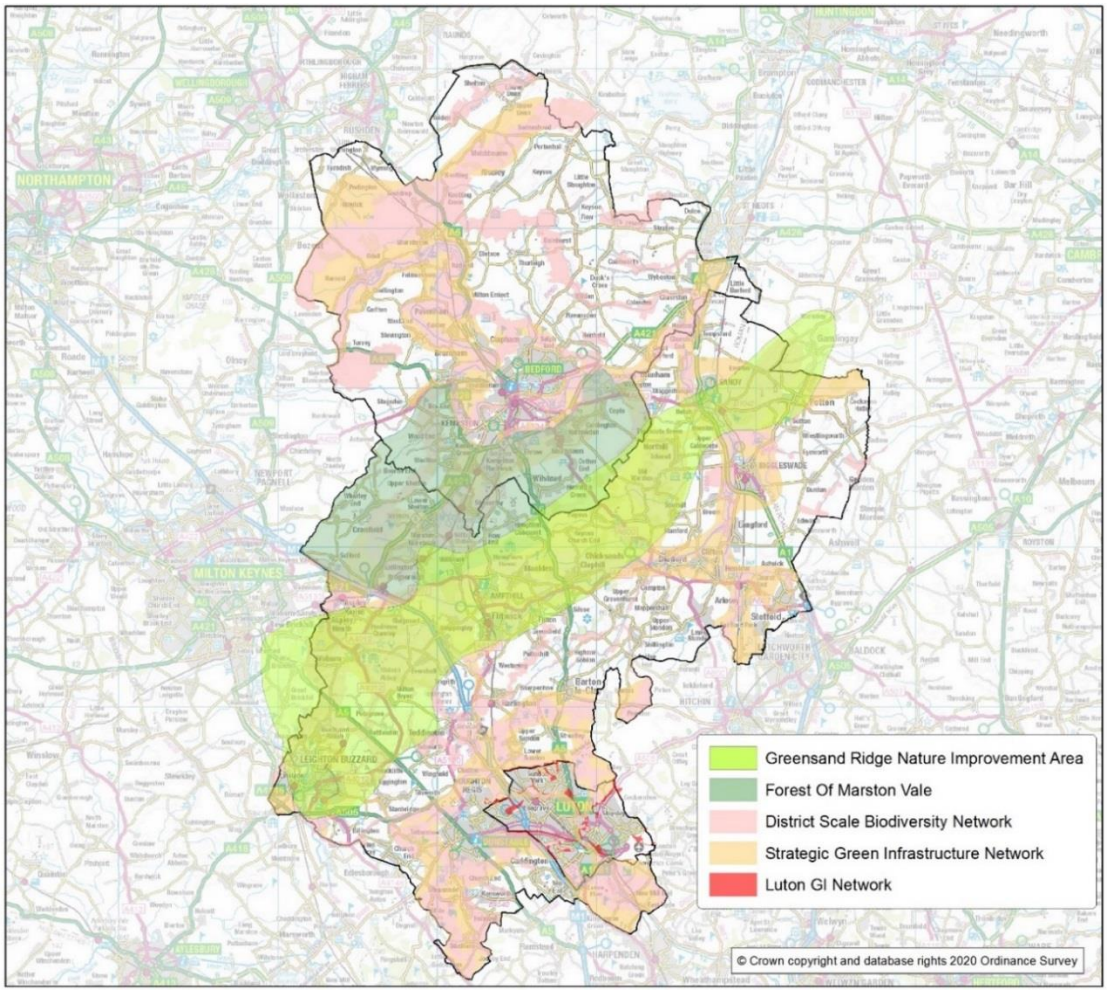


6. Bedfordshire Opportunities

The Bedfordshire Green Infrastructure Network was created in 2007. In order to create the Strategic Green Infrastructure Network Map, broadly speaking, the pattern of existing green infrastructure assets was integrated with more detailed opportunity area mapping to identify areas and linkages of multi-functional strategic green infrastructure provision. A key feature of the Green Infrastructure Network is connectivity and the creation of green infrastructure corridors. Local knowledge and expertise from members of the Green Infrastructure Consortium was applied as part of the mapping process to ensure the Green Infrastructure Network is grounded in reality. This is a strategic-level network and boundaries are indicative and therefore are not intended to act as definitive hard-edged borders. To find the full report and to be able to see the more detailed opportunity analysis please go here[vi].

The aim of the Greensand Ridge Nature Improvement Area (NIA) is to develop more joined-up robust networks of habitats at the landscape scale. The main habitats are heathland, acid grassland, woodland (and also very important but isolated areas of acid mire) and parkland. The Greensand Country Landscape Partnership is the key delivery mechanism, and is also delivering access, engagement and skills development work. Further information is available here: Link[vii]

The Forest of Marston Vale is a national landscape (regeneration) designation, a Community Forest. It was designated in 1991 with 40-year timeframe, it spans 61 square miles between Bedford and Milton Keynes and has a 40-year vision to transform an industrially-scarred landscape by planting trees and using woodlands to reverse the deep environmental, social and economic legacy industry. The headline target is to achieve 30% tree cover, the area started with c.3.6% cover in 1991 and is now assessed as having reached 15.4% tree cover by 2015. Further information is available here: Link [viii]

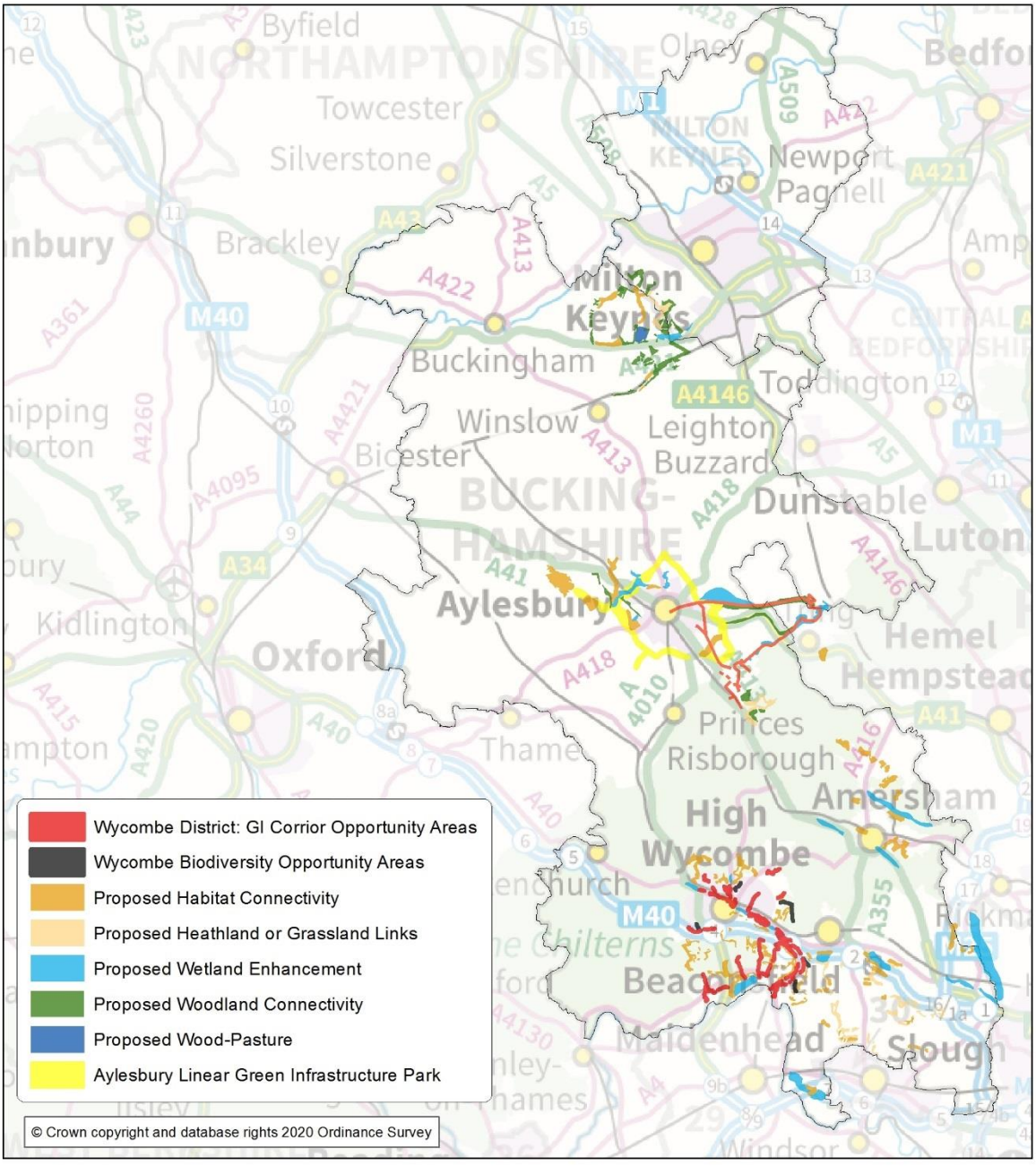


7. Buckinghamshire and Milton Keynes Opportunities

The mapped opportunities that you can find within this map highlight potential locations of environmental improvements within Buckinghamshire.

There are also opportunity areas within Wycombe District, which are highlighted within the Adopted Delivery and Site Allocations Plan (2013). They are a mixture of areas which currently have a Green Infrastructure (GI) Value, areas that have an opportunity for GI and those that are an opportunity for biodiversity improvements. You can find the full plan here[ix]. This plan was adopted in 2013.

The Natural Environment Partnership (NEP), is part of the Local Nature Partnership for Buckinghamshire and Milton Keynes. The NEP promotes the value of the natural environment in decision making at all levels and takes a strategic view of the challenges and opportunities facing nature. In 2018, together with partners they created Green Infrastructure Opportunities Mapping: you can find out more here[x].



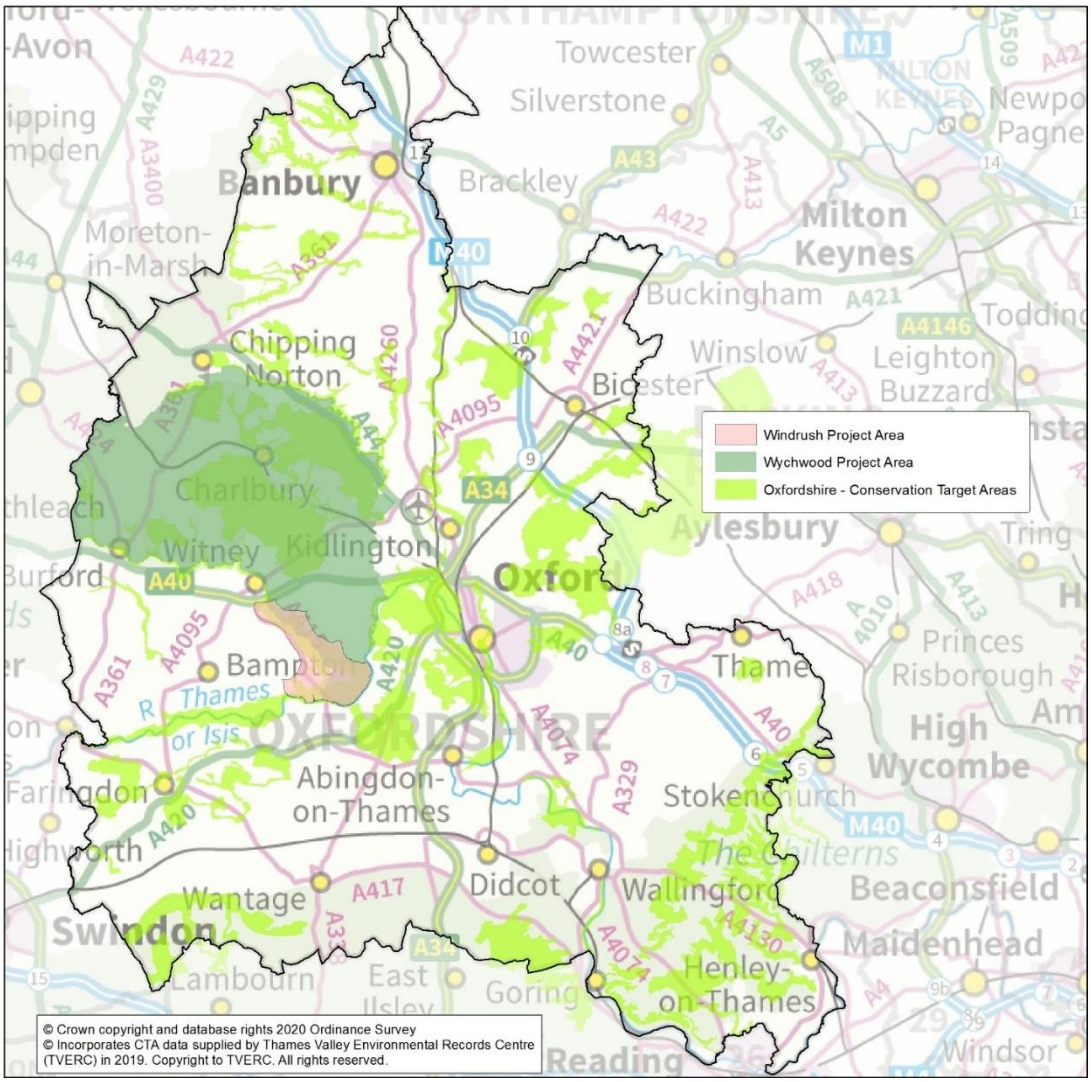
8. Oxfordshire Opportunities

Within Oxfordshire Conservation Target Areas (CTAs), have been identified. These CTAs identify some of the most important areas for wildlife conservation, where targeted conservation action will have the greatest benefit. CTAs cover just over 20% of the county by area (526.2 km²) and contain 95% of the SSSI land area in Oxfordshire. Further information on CTAs is available on Wild Oxfordshire's website (here[xi]), including detailed information on each of the CTAs within the county (this was provided by TVERC, copyright of Wild Oxfordshire).

In addition to the CTAs there are two other location-based project areas in Oxfordshire that have been provided to the LNCP to include in our opportunity mapping. These are the:

- Wychwood Project Area: This is a long-established project in West Oxfordshire based around the former royal hunting forest of Wychwood and it is, amongst other things, trying to conserve and restore the natural landscape in this area. It is now run by an independent charity and more information can be found at www.wychwoodproject.org

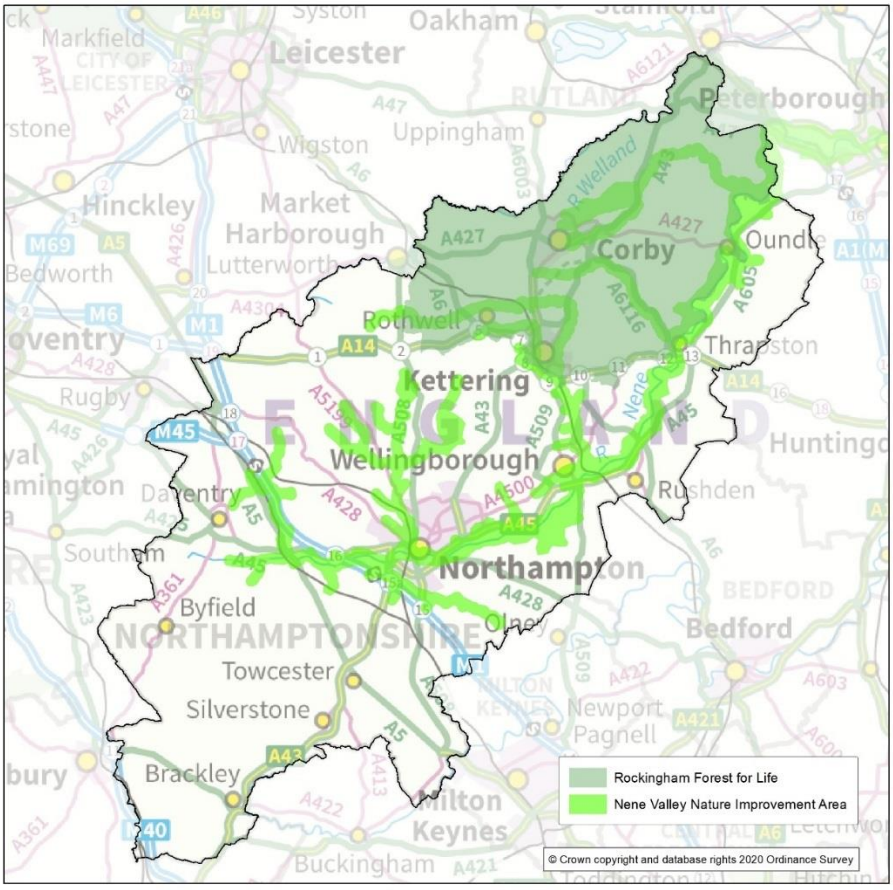
- Lower Windrush Valley Project Area: This is a well-established project focused on an area that has been heavily subjected to sand and gravel extraction. This Oxfordshire Country Council project aims to create and implement an environmental strategy for the Lower Windrush Valley.



9. Northamptonshire Opportunities

In Northamptonshire, there are a range of different environmental opportunities to explore. The map below shows two of examples of these:

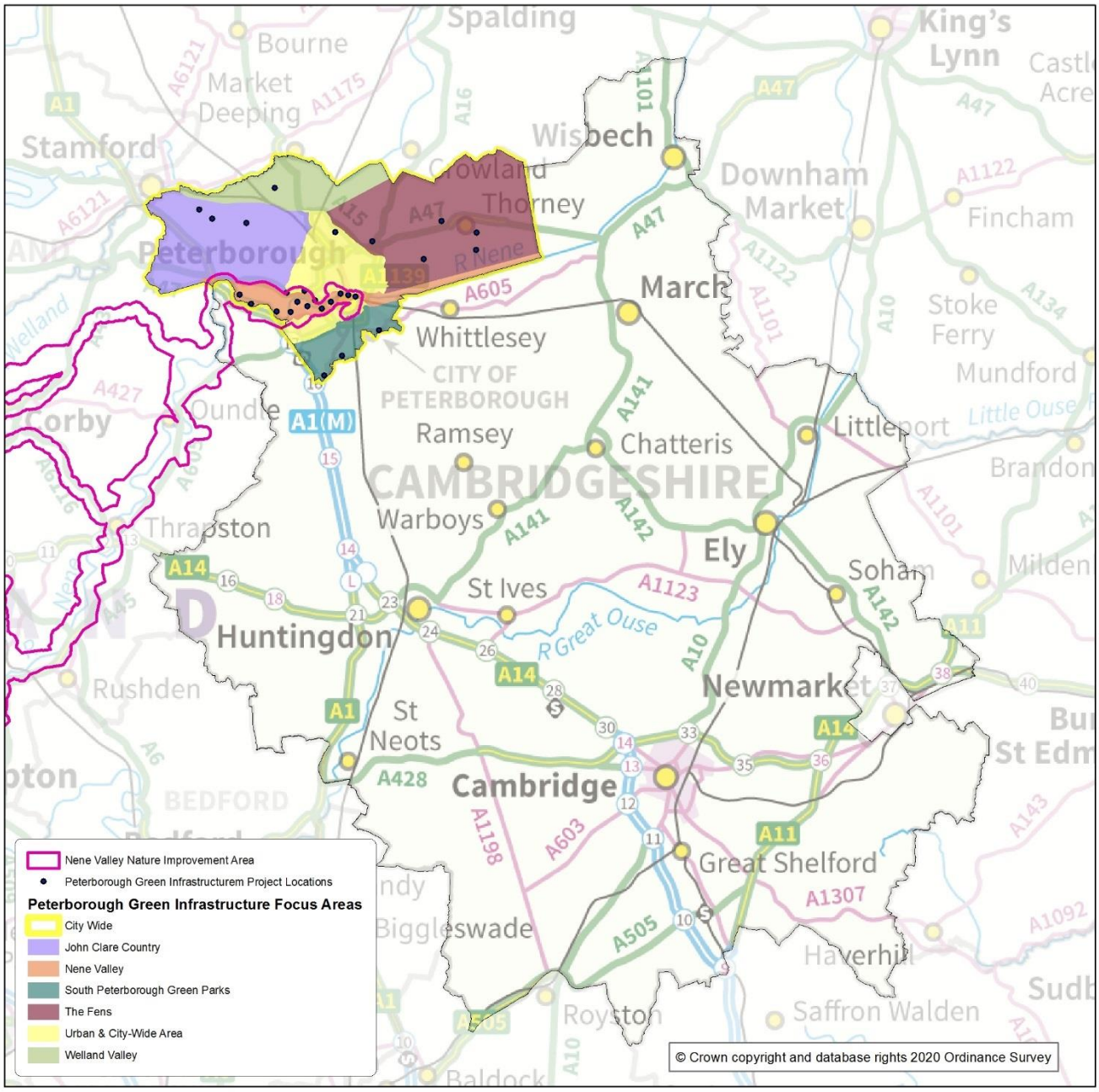
- Rockingham Forest for Life: this project covers more than 200 square miles of once ancient broad-leaved forest which has been reduced to separate woodland patches, dotted through the arable landscape. The aim of the project is to establish a methodology to deliver significant areas of new woodland within the Rockingham Forest area as a local response to climate change. It will do this by piloting an innovative partnership approach which will embrace public, private, third sector and community involvement. Further information about the project can found at this Link [xii].
- The Nene Valley Nature Improvement Area aims to re-create and re-connect natural areas along the River Nene and its tributaries from Daventry to Peterborough. This project involves local organisations and individuals working together to make a better place for nature in Northamptonshire. You can find out more about this project on the Bedfordshire, Cambridgeshire & Northamptonshire Wildlife trusts website here[xiii].



In addition to the examples included on the map above, Northampton Borough Council have their own web-mapping platform where you can view Green Infrastructure areas and Habitat Networks. You can find this here[xiv]. Natural Capital Solutions have also produced a report called 'Habitat Opportunity Mapping in Northamptonshire and Peterborough' in 2018 (found here[xv]). Within this report you will find a series of maps that identify possible locations where new habitats can be created that will be able to deliver particular benefits to people and the environment. The maps provided are in PDF form and the shapefiles of these opportunity locations are not freely shareable but please get in contact with the Northamptonshire Local Nature partnership if you would like more information.

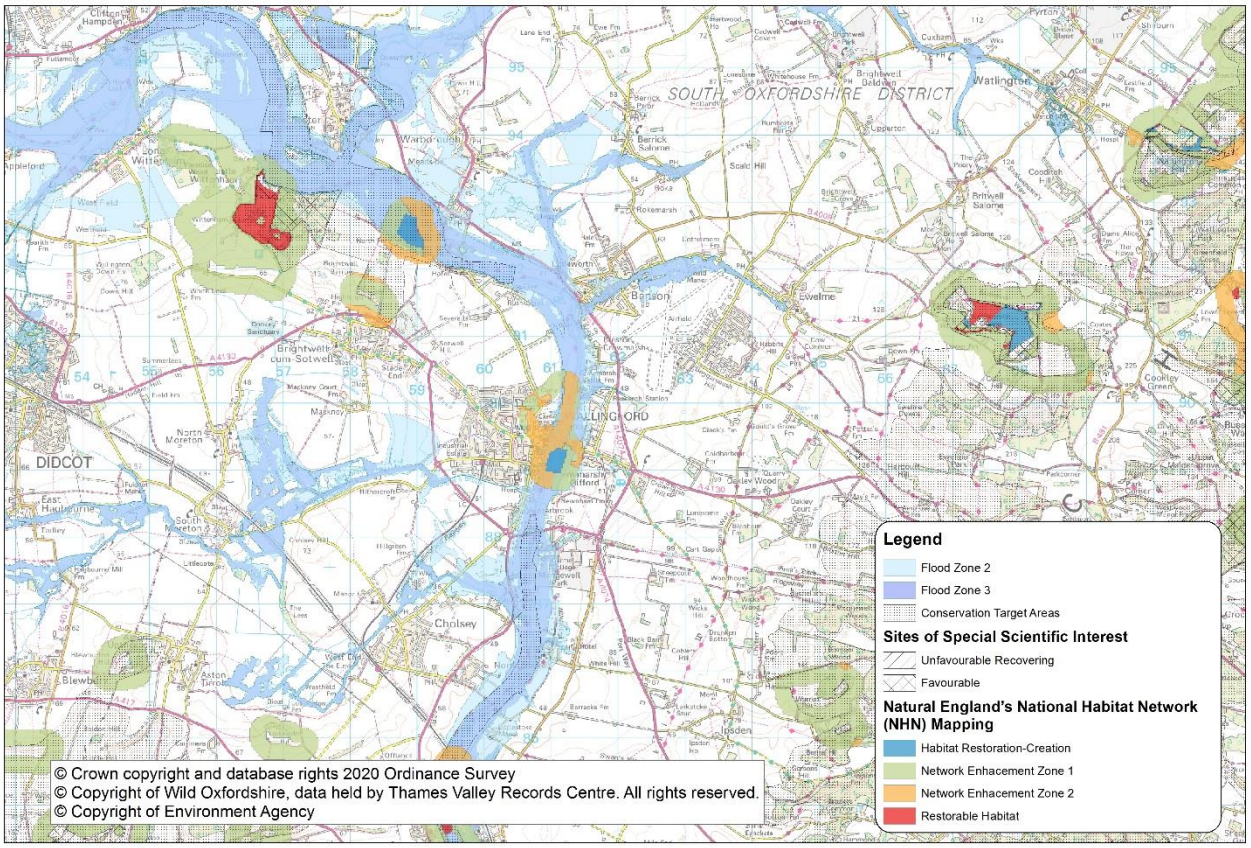
10. Cambridgeshire and Peterborough Opportunities

This map shows the opportunity areas identified in the Peterborough Green Infrastructure Plan and the dots represent the individual projects. You can find detailed explanations of the projects here[xvi].
Cambridgeshire has a Green Infrastructure Plan that you can find here[xvii], within it you will find a strategic network with detailed descriptions of the focus areas along with specific projects that are either ongoing or have potential.



11. How this information could be used – Wallingford example

Below is an example where we have looked at the various different opportunities that are highlighted through this document. We have chosen to zoom in on Wallingford because it is where our office is located. This map is intended to highlight how we can have a fuller picture of an area's environmental potential by looking at multiple opportunities, created by various organisations, from the Environment Agency's flood zones and their potential for natural flood risk management to Natural England's Habitat Network Enhancement Zones.



12. References

[i] https://naturalengland-defra.opendata.arcgis.com/datasets/habitat-network-priority-restoration-combined-habitats-england

[ii] https://www.rspb.org.uk/our-work/conservation/conservation-and-sustainability/advice/conservation-land-management-advice/heathland-extent-and-potential-maps/

[iii] https://www.lunevalleyfloodforum.org.uk/uploads/1/2/3/7/123753072/wetlandvision_tcm9-132957.pdf

[iv] http://evidence.environment-agency.gov.uk/FCERM/en/SC060065/About.aspx

[v] https://www.forestresearch.gov.uk/documents/1768/FR_Broadmeadow_NOM_EW_2014.pdf

[vi] http://bedfordshirenaturally.com/wp-content/uploads/2015/01/Beds_and_Luton_Strategic_Green_Infrastructure_Plan.pdf

[vii] https://www.greensandtrust.org/greensand-ridge-nature-improvement-area

[viii] https://www.marstonvale.org/

[ix] https://www.wycombe.gov.uk/uploads/public/documents/Planning/Planning-policy/DSA2012/Adopted-delivery-and-site-allocations-plan.pdf

[x] https://bucksmknep.co.uk/projects/gi-opportunities-mapping/

[xi] https://www.wildoxfordshire.org.uk/biodiversity/conservation-target-areas/

[xii] https://www.riverneneregionalpark.org/publications/brochures-downloads/forests-for-life/woodland-opportunity-mapping-for-the-rockingham-forest.pdf

[xiii] https://www.wildlifebcn.org/nene-valley-nia

[xiv] http://mapping.northampton.gov.uk/

[xv] http://www.naturalcapitalsolutions.co.uk/wp-content/uploads/2018/05/HOM_project_-_final_report_FINALcompressed.pdf

[xvi] https://www.peterborough.gov.uk/asset-library/imported-assets/GreenGridStrategyRevisedPrioritiesProjectsTable.pdf

[xvii] https://www.cambridge.gov.uk/media/2557/green-infrastructure-strategy.pdf