Oxford to Cambridge Arc Natural Capital Indicator Maps

The Oxford to Cambridge (OxCam) Arc covers 5 ceremonial counties lying to the north and north west of London. The Arc encompasses Bedfordshire, Buckinghamshire, Cambridgeshire, Northamptonshire and Oxfordshire, including the unitary authorities within the ceremonial counties (e.g. Peterborough and Milton Keynes), and covers approximately **8.6% of England**. The OxCam Arc was brought together because of its economic importance to the UK rather than a shared physical geography.

This document summarises the Local Natural Capital Plan (LNCP) team's work on natural capital indicator mapping. The report 'Oxford to Cambridge Arc Natural Capital Indicator Maps' is the first product from the LNCP project. The mapping and supporting information in the report show the quantity of natural capital assets and associated ecosystem services across the ceremonial counties, and give some information about the quality of assets.

Purpose of the indicator mapping

The indicator maps are not designed to be used at a detailed local scale or to influence local planning decisions. They are designed to give a **strategic overview** of the natural capital within the Arc and we, and our partners, will use them to generate awareness of the current natural capital assets throughout the Arc. We have used the indicator maps as a tool in our autumn 2019 workshops to help inform discussions and decisions regarding the Natural Capital baseline assessment e.g. agreeing an appropriate scale to use for our maps.

The full report will be made available to all stakeholders, however we envisage it will prove to be most valuable to our partners to aid development of more detailed local evidence, and to aid collaboration.

Source and methodology

Our maps and supporting information are based on national data sets and replicate the approach used by Natural England (NE) in their Natural Capital Atlas. Both our report and NE's Atlas build on NE's earlier Natural Capital Indicators project which generated a series of indicators through understanding the links between natural capital assets and the ecosystem services they provide. In this report we have taken a subset of these indicators and used various datasets to act as a proxy for assessing them.

Each of the Oxford to Cambridge Arc maps uses a 1 km² hexagon grid (which is a different scale to the NE Atlas). We assigned the value of each hexagon by overlaying indicator datasets. The value scale for each indicator dataset is representative of the range of values within the Arc, as opposed to comparing on a nation level. Using a location specific scale helps to highlight areas of habitat that have a high coverage within the Arc but are not visible in datasets at a national scale.

What our indicator mapping tells us?

As outlined, this work was undertaken mainly to support us develop our own work collaboratively for Natural Capital assets in the Arc and the value they provide - using this work as a foundation. However, as a standalone this report has highlighted some key points of note about the natural capital assets and their make up in the Arc.

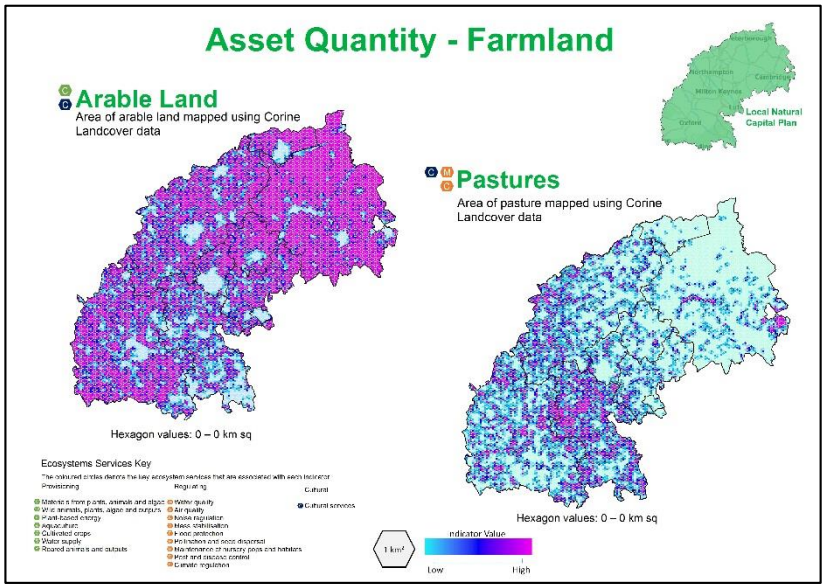
Asset quantity and location highlights

Freshwater

- The Fens, located in the north east of the Arc around Cambridge, have some of the highest densities of flood plains in the country. This provides the area with highly productive agricultural land. You can also pick out the River Thames (North of Oxford) and the Great Ouse which have significant areas of floodplain grazing marsh. **Most of the Arc is well supplied with rivers**, with the Thames, Great Ouse and the River Nene flowing through it, However the Atlas highlights a lower density of rivers along the southern ridge of the Arc.

Agricultural land

- The Arc's land is 91.74% Agriculture (using Defra's agricultural land class data) whereas England as a whole is slightly less at 87.67%. The Arc's land is highly productive, 6.32% of the Arc's total land is grade 1 agricultural land and 24.17% is grade 2, this is compared to the England figures of 2.72% and 14.18% respectively. The Arc's agricultural picture mirrors that of England, Arable to the East and livestock to the West. However as mentioned the Arc has a higher proportion of more productive land – approximately 20% of England's Class 1 Agricultural land is within the Arc.
- There is a higher percentage of arable land than pasture in the Arc as a whole, reflecting the main farming production being within arable cropping. The data also shows that the majority of cropping is of annual crops, as there is a low density of permanent cropping shown.



Woodland

- Using Natural England's Ancient Woodland dataset we can determine that 8.5% of England's ancient woodland landcover is within the Arc, with the majority of it found within the Chilterns. There are however, lots of ancient woodland patches elsewhere in the Arc, just at a lower density. This is why undertaking this mapping at a more detailed scale (1km hexagons) is crucial to provide real context at a local level - these smaller but plentiful ancient woodlands are not shown visually on the national mapping.

Asset quality and context highlights

Hydrology and geomorphology

- It is well documented that the South East of England is a water stressed area, and this pattern can been seen clearly when looking at the natural aquifer function map, which shows that many of the groundwater aquifers across the south eastern area of the Arc did not achieve 'good' quantitative status for WFD in 2016.

- The water scarcity message is reiterated in the map showing where surface water is available for abstraction readily – on this map for the Arc it can be shown that the majority of the indicators across the Arc show low value.

Soils

- The south western part of the Arc, has a better indicator value for the mean nectar plant species for bees per 2x2 metre plot. You can see how this pattern shows where the Arc fits in with the national picture, nationally there are high percentages of plant habitat indicators on the central South Coast and in the north west of England with lower percentages in the centre of the country.

Cultural

- Favourable condition of SSSI – At first glance the Atlas's map of this indicator for the Arc seems to be greatly lacking in this measure, it doesn't have much purple colouring. However there is a lot of SSSI activity, it is just the SSSI units might not be as big as other areas. Within the Arc around 20,000 Hectares of land are designated as a SSSI, this is 1.76% of the total Arc area and 47.16% of this landcover is in favourable condition.