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Supporting landscape management, conservation and community initiatives

Cotswolds National Landscape and Triage

The Cotswolds National Landscape is responsible for delivering a five-year Management Plan to conserve and enhance the natural beauty of the Cotswolds. Change-agency Triage and environmental and agricultural data consultancy Environment Systems have used their market-leading approach and systems to redefine how the organisation sources, analyses and presents data to inform decision-making and create landscape management strategies that will benefit conservation initiatives and local communities for generations to come.

The Challenge

- Develop a methodology for sourcing accurate and reliable data and presenting it in a cohesive and impactful way, to inform decision-making.

The Benefits

- Transforming data into intelligence
- Improved stakeholder engagement
- Accuracy of information
- Better resource management

The Challenge

The Cotswolds National Landscape (CNL – a new name for the the Cotswolds Area of Outstanding Natural Beauty and the organisation which helps look after it) is the largest of its kind in England covering 200,000 hectares, spanning six county/unitary authorities. This stunning area is managed by the small team at CNL – an independent public body that works hard to conserve and enhance the natural environment while fostering the well-being of local communities.

Under the remit of the Department for Environment, Food and Rural Affairs, the UK's Protected Areas are required to deliver an evidence-led five-year Management Plan, and CNL have developed a Cotswolds Nature Recovery Plan to provide further guidance. This requires robust, consistent and up-to-date data.

Sourcing reliable data across these vast landscapes has always been a major roadblock. CNL works with multiple partners across public, private and not-for-profit sectors, many of which have undertaken their own studies, but all at separate times and for different purposes. Data previously collected has been inconsistent, gathered using different methodologies, presented in different formats and stored in multiple locations – meaning that there was no single-source-of-truth set of natural capital baselines.

In addition, there was no consistent landscape-wide set of natural capital opportunity maps which identify areas of land which are most suitable for enhancing ecosystem services, such as nature recovery networks, carbon sequestration, farming, and improvements to natural flood management and water quality. Furthermore CNL has no in-house GIS personnel or platform needed to deliver this momentous task.
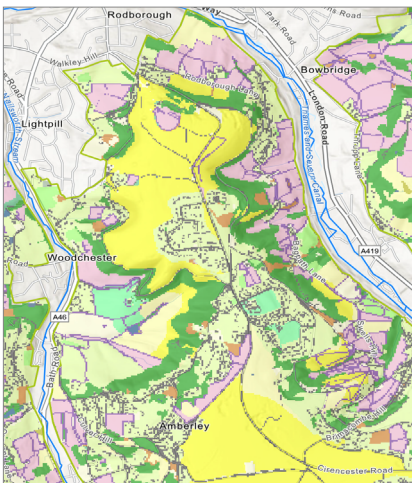
CNL reached out to Triage, a leading change agency who work with Esri's ArcGIS System, and Environment Systems, the UK's leading environmental and agricultural data consultancy. Whilst daunting the brief was simple: create the single-source-of-truth required to support the creation of the Cotswolds Management Plan and Nature Recovery Plan, and to help inform decision-making to deliver practical on-the-ground enhancements to natural capital throughout the landscape.

The Solution

Triage are Esri UK's rural partners, and the first step was to download the CNL boundary from the Living Atlas, Esri's repository of thousands of ready-to-use maps and datasets. This was shared with the Environment Systems team who then sourced third party data including the most recently available Sentinel satellite imagery covering the entire area. These were used within their market-leading natural capital tool SENCE – Spatial Evidence for Natural Capital Evaluation – to generate a set of baseline maps and opportunity maps for the whole of the Cotswolds protected landscape.

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> This online dashboard gives us access, for the first time, to the sophisticated data we need to plan the delivery of nature recovery. It also provides us with an interactive engagement tool for authoritative and informed discussions with landowners about what practical on-the-ground steps can support the delivery of the Cotswolds Nature Recovery Plan.

Simon Smith, Nature Recovery Lead, Cotswolds National Landscape

Map of habitat

On receipt of this geodatabase, Triage ran some simple GIS routines within ArcGIS Pro which included clipping, intersecting, joining and buffering the data into the Cotswolds National Landscape Areas.

Buffering habitat data and filtering the mapped information by Landscape Areas has further enabled CNL to tailor their Nature Recovery Plan for specific areas, something which had previously been impossible. The data files were uploaded and published into ArcGIS Online and, with ArcGIS Dashboards, used to create interactive data visualisations and reports on a single screen.

Triage built more than 20 separate dashboards, and these were organised and grouped by ecosystem service theme using ArcGIS StoryMaps.

A single URL embedded in CNL's website gives users access to the final product: A Natural Capital Evaluation of the Cotswolds National Landscape. Triage used ArcGIS StoryMap design features to include CNL branding and corporate colours, embedded videos as well as separate tabs for Habitats, Carbon Storage and Farming amongst others, all containing a wealth of data. An embedded link to the project report enables users to review the full methodology including nature recovery network modelling.

View the CNL's dashboard here, and learn more about Triage's approach here.

The Benefits
Transforming data into intelligence
Large amounts of spatial data have been transformed into manageable information. Using ArcGIS Pro processing tools, data has been analysed and insights gained. Users can interrogate accurate and reliable data enabling them to make recommendations on eg policy direction for landscape strategies.

Improved stakeholder engagement
Digital storytelling gives the author's narrative, in this case CNL, a greater sense of place by visualising spatial relationships across the region. Embedded dashboards let readers engage with spatial and non-spatial data and, along with embedded photos and videos enable stakeholders to easily assess and absorb information.

Accuracy of information
Near real-time data updates can be automated ensuring that the StoryMap contains the most recent data. Readers and stakeholders have access to the most current information, helping them to identify and trends as they occur, thereby improving efficiency and accuracy of decision-making.

Better resource management
As a fully hosted solution, the published A Natural Capital Evaluation of the Cotswolds National Landscape requires no support or resources internally. CNL can focus its limited resources on its core remit, to conserve and enhance the natural beauty of the Cotswolds, increase understanding of its special qualities and foster the social and economic well-being of local communities.

Learn more at: esriuk.com