Delivering conservation at scale

Oxygen Conservation

The Challenge

- Share environmental data pertaining to nine sites across the UK
- Measure the success of conservation interventions

The Benefits

- Deeper understanding of conservation at scale
- Effective monitoring of environmental change
- Improved transparency and collaboration with stakeholders
- Well-considered expansion of ethical business

An organisation that is working to redefine and expand conservation across the UK is using Esri's ArcGIS system to gain a deeper understanding of landscapes, habitats and species across a portfolio of land covering almost 30,000 acres. ArcGIS is helping Oxygen Conservation to evaluate the potential of natural capital, implement sustainable land management practices and measure the positive impact of its environmental programmes.

The Challenge

Oxygen Conservation's purpose is to deliver conservation at scale. By improving land management across large areas of the UK, the organisation's founders aim to deliver positive environmental and social impacts, while also achieving a profit for investors as a result of what they do, not the purpose. It currently owns and manages ten sites in Scotland, England and Wales, covering a total area of almost 30,000 acres. Each of its sites has a different mix of land types and habitats and therefore presents different land management challenges.

Oxygen Conservation commissions a wide variety of surveys and studies to gather ecological, environmental and financial data for each of its sites. The organisation needed a space in which it could collate this information, review it and share it with both internal and external parties. Most importantly, however, it needed to be able to visualise its sites and monitor change over time to help it clearly demonstrate its positive impact across a diverse range of landscapes.

The Solution

Lara Salam was appointed as Oxygen Conservation's first-ever data visualisation expert and quickly set to work creating a range of solutions using Esri's ArcGIS system. She started by using ArcGIS Pro on the desktop to consolidate in-house data, as well as third-party data on habitats, landscape features and boundaries from Esri UK's Premium Data Services and the Esri Living Atlas of the World.

Harnessing the flexible capabilities of ArcGIS Online and ArcGIS Experience Builder, Salam then created a custom web application for each of Oxygen Conservation's sites, known internally as data viewers. Styled consistently with the organisation's branding, these data viewers enable employees, partners and stakeholders to see a vast amount of information, in one location, on one interactive map of the site. This data includes footpaths, habitat layers, biodiversity scores, water quality and river networks.

From these first steps, the use of ArcGIS within the organisation has continued to evolve. Now, senior managers use an ArcGIS Dashboard to maintain a high-level understanding of the organisation's complete land portfolio. This dashboard provides a live overview of the number of sites under management, the amount of money invested, the size of tree planting areas and a bar chart showing the range of habitats.

Oxygen Conservation is beginning to create ArcGIS StoryMaps too, to help employees to share information about their vision for sites with a wider audience. They are incredibly excited to soon be sharing this data on certain areas of their website for others to see and further understand the plans for each site through visual demonstration. One recent StoryMap explains what Oxygen Conservation plans to do on Exmoor, as part of a joint venture with a family of farmers, who have lived on the land for generations. "ArcGIS
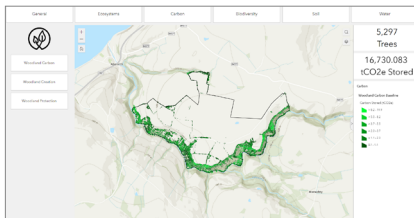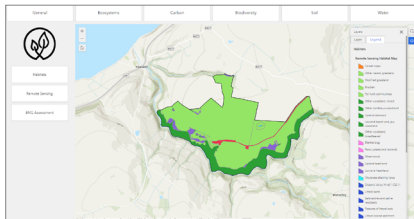
> ❝ ArcGIS enables us to show the changes that have occurred and the impact we have made to improve things for the future. ❞

Lara Salam, GIS and Data Visualisation Expert, Oxygen Conservation

ArcGIS web apps showing ecology and carbon sequestration at Esgair Arth in Wales

StoryMaps are a really effective way to share a story about a particular site or scheme," Salam says.

To support its planned expansion, Oxygen Conservation also uses automation tools in ArcGIS Pro, including ArcGIS ModelBuilder, to build geoprocessing workflows for evaluating land parcels that are for sale and gathering data to inform investment decisions. Then, whenever a new site is acquired, a new ArcGIS data viewer can be created specifically for it, very quickly, by replicating the organisation's existing data viewer templates.

The Benefits

Deeper understanding of conservation at scale
The online data viewers that Oxygen Conservation has created with ArcGIS give employees a deeper understanding of complex and precious environments across large sites, at multiple locations throughout the UK. Everyone can get the information they need, from any internet-connected device, wherever they are working. At Esgair Arth in Wales, the ArcGIS data viewer has helped Oxygen Conservation to visualise and appreciate the unique valley setting of an ancient woodland and plan a conservation scheme to support the sustainable regeneration of this beautiful area.

Effective monitoring of environmental change
ArcGIS provides an effective and highly visual way for employees at Oxygen Conservation to track their progress over time and demonstrate the positive impact they are initiating on the environment. At the 11,000-acre Invergeldie estate in Perthshire, Scotland, for example, Oxygen Conservation will use ArcGIS to show where peatland restoration and tree planting will occur. "ArcGIS enables us to show the changes that have occurred and the impact we have made to improve things for the future," Salam says. "Future generations will be able to walk through the woodlands we have created and appreciate the species we have helped flourish through the improvement habitats and those we have reintroduced."

Improved transparency and collaboration with stakeholders
For many projects, including the 400-acre Wood Advent Farm in Devon, Oxygen Conservation uses its ArcGIS data viewers to share information openly with stakeholders and partners. With access to the same, up-to-date data, all partners involved in the regeneration of Wood Advent Farm are able to work collaboratively to transition to organic food production. "Our stakeholders are often very invested in the landscape," says Salam. "ArcGIS enables us to share information with them and be transparent about our future plans."

Well-considered expansion of ethical business
By enabling Oxygen Conservation to evaluate the natural capital of land parcels that are for sale, ArcGIS is playing a key role in helping the organisation to achieve its goal of significantly growing the acreage under management within two years. "Scaling up our use of GIS is helping us to scale conservation," Salam says. "ArcGIS helps us to understand the natural capital potential of sites, identify areas where Oxygen Conservation can add value and determine how much positive change we can make in different environments."

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