

Protecting and enhancing a spectacular natural landscape

Loch Lomond

The Challenge

- Protect and conserve outstanding areas of natural beauty and environmental significance in the Loch Lomond & The Trossachs

The Benefits

- Information available to staff within hours whereas previously it may have taken up to 4 weeks to process
- Improved processes for monitoring the success of conservation schemes
- Accurate data on maintenance requirements, leading to more cost effective job scheduling



In one of the most scenic regions of Scotland, a small organisation has accomplished a big transformation in the way that it records data in the field, using Esri's ArcGIS Online platform and mobile GIS apps. Loch Lomond & The Trossachs National Park Authority can now collect better data, monitor its conservation activities more successfully and make faster interventions to protect and enhance this popular national park.

The Challenge

Covering an area of 720 square miles, Loch Lomond & The Trossachs National Park comprises twenty one Munros (Scottish mountains over 3,000 feet), twenty two large lochs, two forest parks and the UK's largest National Nature Reserve. The park authority has a responsibility to protect and conserve these outstanding natural environments, while allowing visitors to enjoy the area safely. To achieve these goals, it needs to collect a vast amount of information on everything from the locations of rare orchids to the conditions of footpaths.

Conservation specialists and park rangers used to collect data in the field on paper and then either file their notes to use in reports or input them into spreadsheets. As a consequence, the data collected in the field was inconsistent, incomplete and often inaccessible. Furthermore, the GIS team needed to spend a considerable amount of time cleaning and consolidating handwritten, printed and digital data in order to create the digital maps that the park authority needed to support its conservation planning.

The Solution

Loch Lomond & The Trossachs National Park Authority had the inspiration to use GIS mobile apps to address its challenges when it gained free access to Esri's ArcGIS Online solution and apps, as part of its license agreement with Esri UK for ArcGIS Desktop. "When we saw the Collector App for ArcGIS we immediately recognised the potential that it had for our organisation," says Sally Newton, the park's GIS manager. "We then went and talked with other organisations in Scotland that were using the app, and the tremendous results that they had already achieved really backed up our business case."

Using ArcGIS Online, the Collector App for ArcGIS and Survey123 for ArcGIS, Loch Lomond & The Trossachs National Park Authority quickly created and rolled out over 12 bespoke data collection apps, for more than 30 members of staff, to support different business activities. For example, an 'Orchid Habitats' app allows staff to note the locations of rare orchids and complete surveys in the field to record their habitat and environment. "The more ArcGIS mobile apps we have developed, the more opportunities we have found to use them," Newton says.

Data is entered on a variety of tablets and smartphones via dropdown boxes, making it very easy for people to collect all of the required information in a consistent format, as well as take pictures. Staff can work offline, as mobile coverage is poor in the more remote parts of the park, and upload all their data to ArcGIS Online when they reach a Wi-Fi hotspot.

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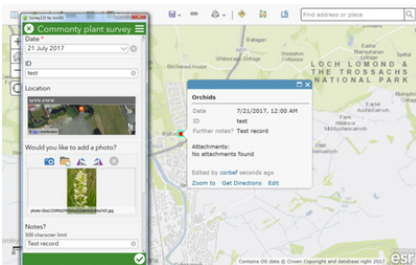
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The solution continued...

Even though Loch Lomond & The Trossachs National Park Authority is a relatively small organisation, with a small number of experienced GIS professionals, it has been able to develop its new apps very quickly and easily. Francis Corbett, the park authority's GIS systems officer, says, "Once all the planning is done, and you know which survey questions need to be answered, creating the app and setting it up in ArcGIS Online can be achieved in a few hours."

“By helping us to collect information in the field more accurately, and make it available to staff almost immediately, ArcGIS Online supports a broad range of the National Park Authority's work including conservation, rural development and visitor experience.”

Simon Jones, Director of Conservation and Visitor Operations,
Loch Lomond & The Trossachs National Park Authority



Survey123 field app and ArcGIS Online displaying orchid survey.

The Benefits

Faster interventions to preserve the park

As the data collected no longer needs to be inputted manually, with less post-processing and cleaning, the GIS team has been able to reduce the time required to create and share digital maps by as much as four weeks, for some of the mobile GIS apps introduced. Consequently, managers within the organisation have faster access to information on critical issues – such as the current whereabouts of rare species and damage to bridges and footpaths – and can make more rapid decisions about any necessary interventions. “By helping us to collect information in the field more accurately, and make it available to staff almost immediately, ArcGIS Online supports a broad range of the National Park Authority's work including conservation, rural development and visitor experience,” says Simon Jones, Director of Conservation and Visitor Operations at Loch Lomond & The Trossachs National Park Authority.

Improved monitoring of conservation schemes

The use of Collector App for ArcGIS helps the park authority to more precisely monitor the spread of non-native invasive species, as employees can capture their locations on digital maps simply by walking around the footprint of the invasive plants. “We can pick up changes in the distribution and spread of invasive species far more accurately with our mobile GIS apps,” says Newton. “We can also monitor the effectiveness of different types of treatment more closely, over time, which helps us to achieve targets for the reduction of invasive species.”

More cost-efficient park maintenance programmes

Now that the park authority is able to collect better information about the condition of footpaths, footbridges, signs and information boards around the park, it is beginning to put new processes in place that will, in the future, improve the cost efficiency of its maintenance programmes. Staff will be able to prioritise urgent repair requests and simultaneously identify other less-urgent maintenance tasks in the same vicinity, to undertake multiple nearby jobs on the same visit. As Newton says, “One of the park authority's biggest costs is staff time, so if we can reduce repeat trips to remote areas, we can increase efficiency and reduce the number of vehicle journeys.”

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