

Caring for the nation's trees

National Trust

The Challenge

- Improve the management of seven million trees

The Benefits

- Better risk management due to more transparent information
- Faster implementation of measures to protect people and property
- Time savings for mobile workforce
- 91% positive feedback from employees

The National Trust needs to monitor the condition of over twelve million trees, including several that are thousands of years old, to reduce the risk of injuries from falling branches. The charity now uses Esri's ArcGIS platform to help it inspect trees more efficiently and ensure its compliance with statutory regulations for tree management.

The Challenge

Some of the oldest, rarest and most famous trees in England, Wales and Northern Ireland can be found on land owned and managed by the National Trust. In total, the charity cares for approximately twelve million trees including 40,000 that are notable for their age, size or historical significance. The National Trust, like all landowners, has a statutory duty to reduce the risk to people and property from falling trees and branches and therefore faces the mammoth task of having to assess the condition of thousands of trees every year, so that everyone can enjoy the outdoors.

Previously, National Trust rangers used a well-established paper-based process to inspect trees and collect data in the field, but paper forms often got wet or damaged and needed to be completed again. When rangers returned to the office, key actions were extracted from the initial paper forms into another paper form, and details about any tree maintenance work required was passed to rangers or handed to contractors, using paper once again. As all the tree inspection forms were kept in lever-arch files at local site offices, National Trust staff in central and regional hubs had limited visibility of the risks across multiple properties and the status of remedial actions.

The Solution

To transform the way that it manages trees, the National Trust developed a Tree Safety Management (TSM) app using its existing licence for Esri's ArcGIS platform and rangers' entry-level Android phones connected via Bluetooth to low-cost GPS devices. Rangers use Esri's Collector App for ArcGIS offline in the field to record tree locations, inspection results and actions, as well as gather photos of any potential hazards. This inspection information is then synced to a central repository for tree data on ArcGIS Server, and actions are allocated to the right teams, with no manual intervention or paper. Managers can view identified risks and the status of remedial actions online, using a custom web mapping application built on Esri's ArcGIS Server technology using Latitude Geographics software (platinum partner).

Within just six months, over 190 rangers signed up to use the TSM app and together collected almost 3,000 tree records in the field using the solution. In addition, the National Trust integrated a further 2,000 tree records from historic systems from key locations such as Dyrham Park near Bath. The charity is currently rolling out training for all rangers in the use of the TSM app and anticipates that the solution will become mandatory for all TSM inspections, carried out by over 600 rangers, by 2021.

In developing this app, the National Trust gained guidance from GIS experts within Esri UK's Professional Services team. "Esri UK's consultants gave us peace of mind that we were doing the right thing," says Richard Martin, GIS Analyst at the National Trust. "The consultants also gave us a heads-up about new technology that might be advantageous to us as we continue to develop this and other ArcGIS solutions in the future."



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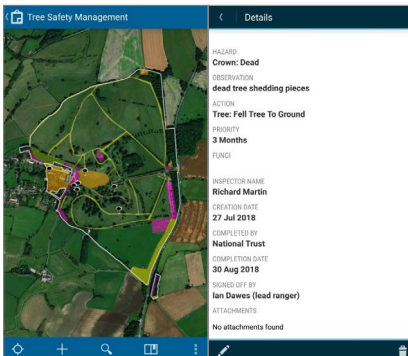
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Graham Clowes, Head of Operational Risk, National Trust



Rangers can locate trees, record inspection details and prioritise actions from their mobile phones using the new ArcGIS-based app

The Benefits

Improved management of risks

The new ArcGIS-based TSM solution improves risk management by providing managers with greater transparency, across the end-to-end process from tree survey to defect remediation, across all properties managed by the National Trust. “The Tree Safety Management app helps the National Trust manage a significant risk to life and limb, through the provision of a simple, user-friendly tree inspection system,” says Graham Clowes, Head of Operational Risk at the National Trust. “The ArcGIS solution gives our operational managers and insurers the assurance that we are effectively balancing our commitment to public access with an excellent system for managing public safety.”

Faster implementation of safety measures

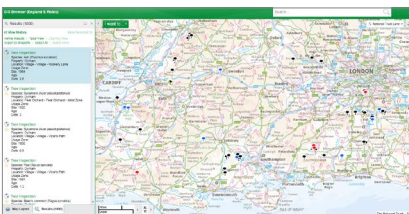
The new TSM app helps the National Trust to ensure that urgent tree maintenance issues are dealt with promptly to protect the general public, volunteers, staff and property. The app allows remedial works to be completed faster, because actions identified in inspection reports are sent more quickly to the correct teams. In addition, the app has eliminated inconsistencies in approach that previously existed between different properties and regions, so actions are prioritised and allocated in a standardised and efficient way.

Time savings for mobile workforce

Although the app has only been in use for a few months, it is already making a notable impact on staff efficiency in the field. The solution cuts out several steps in the completion of forms and production of contractor schedules, reduces the amount of time rangers spend in the office and alleviates business continuity issues when employees leave. National Trust Ranger Richard Newman has seen a huge improvement in his efficiency. He says, “This app has made it so easy, I can, in real time, look at what work needs to be done and map its location. This has meant I am already a month ahead of this time last year. It is so easy to use I have managed to teach my three volunteer tree rangers and our property gardener to use it and use it well.”

High employee satisfaction

The National Trust took a great deal of care in developing the ArcGIS solution to ensure that it met the requirements of rangers – and this diligence has paid off with a high level of user satisfaction. In a survey of 70 rangers, 91% of respondents agreed that the ArcGIS solution has a positive impact on TSM in the National Trust. Furthermore, respondents awarded the solution 9 out of 10 for improving their efficiency in completing TSM inspections.



An ArcGIS-based, custom web app provides managers with an overview of tree safety risks and priority actions across all National Trust properties

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